1998-2000 General Catalog

PURDUE

North Central

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PURDUE UNIVERSITY
NORTH CENTRAL

Announcements for the Years 1998-2000

For further information contact:

Office of Enrollment Services
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Westville, IN 46391-9528
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at Purdue University North Central's
World Wide Web site:
www.purduenc.edu

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Publications Office

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The information contained in this bulletin is subject to change as a result of action by federal and / or state governments, the Trustees of Purdue University, the faculty, and the administration of Purdue University. The content of any individual curriculum is the ultimate responsibility of the respective faculty of each individual department or section. All degrees, with the exception of those in General Business of the Community College, are offered under the jurisdiction of the appropriate schools of Purdue University. The curricula for General Business is governed by the Community College Faculty Council of Purdue University North Central. Questions concerning the contents of this bulletin should be directed to the appropriate section, department, or University official.

Nothing in this bulletin should be considered a contract. This is for informational purposes only.

A copy of PURDUE UNIVERSITY REGULATIONS is available for review in the Registrar's Office, Counseling Center, and at the Switchboard. These regulations cover the following areas: History and Organization of the University, Academic Regulations and Procedures, Classification of Students for Tuition Purposes, Statements on Nondiscrimination, Student Conduct, Regulations and Procedures for Recognized Student Organizations, and Regulations Governing the Use and Assignment of University Facilities.

It is the policy of Purdue University that all persons will be viewed, evaluated, and treated, in any University-related activity or circumstance in which they may be involved, solely as individuals on the basis of their own personal abilities, qualifications and other characteristics relevant to the situation.

No qualified person will be denied admission or employment, nor will any student be subjected to discriminatory treatment or be excluded from participating in any educational program or activity on the basis of race, religion, color, age, gender, national orgin or ancestry, disability, or status as a disabled or Vietnam-era veteran, except where age or gender is a bona fide occupational qualification. No qualified individual with a disability shall, by reason of such disability, be excluded from participating in or be denied the benefits of the services, programs or activities of Purdue University.

In accordance with a long-standing policy of the Board of Trustees of Purdue University and in compliance with state and federal laws and regulations, Purdue University North Central is an equal access and equal opportunity campus. The University promotes and re-affirms this policy through a program of positive action affecting all organizational units which are managed by, or affiliated with, Purdue University. Through this program, the University carries out the requirements of Title VI and VII of the Civil Rights Act of 1964, as amended by the Equal Employment Act of 1972, Federal Executive Orders 11246 and 11375, the Rehabilitation Act of 1973, the Americans with Disabilities Act of 1990, the Vietnam Era Veterans Readjustment Act of 1967, the Age Discrimination Employment Act of 1967, the Indiana Civil Rights Act of 1971, as amended, the Civil Rights Act of 1991, Title IX of the Education Amendments of 1972, and all other applicable state and federal laws, guidelines, and regulations, and indicates its active support of the principles of equal opportunity in employment. The University will, furthermore, take affirmative action to see that these regulations and necessary activities are integrated into all University policies, procedures, and practices.

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PURDUE UNIVERSITY

Officers of Administration

West Lafayette Campus

Steven C. Beering, M.D.	President
Robert L. Ringel, Ph. D.	Executive Vice President for Academic Affairs
Kenneth P. Burns, B.S.	Executive Vice President and Treasurer
Luis M. Proenza, Ph.D.	Vice President for Research and Dean of the Graduate School

North Central Campus

Dale W. Alspaugh, Ph.D.	Chancellor
G. William Back, J.D.	Vice Chancellor for Administration
L. Edward Bednar, Ed. D.	Vice Chancellor for Academic Services
J. Jeffrey Jones, M.S.	Director of Enrollment and Marketing

GENERAL INFORMATION

LOCATION

PURDUE UNIVERSITY is the Indiana link in a nationwide chain of land grant colleges and universities. In addition to the main campus in West Lafayette, Purdue University has established regional campuses for the purpose of extending educational opportunities to major population areas of Indiana. Purdue University North Central, at the junction of the Indiana Toll Road and U.S. 421 in Westville, serves communities in the north central part of the state.

PURDUE UNIVERSITY NORTH CENTRAL HISTORY

Following World War II, Purdue University offered courses in facilities loaned to the University by the Michigan City and LaPorte schools. The programs in each of these areas grew, and in 1948 the Barker Welfare Foundation made the John Barker mansion in Michigan City available to the University. All area classes were consolidated there in the spring of 1949. Through the 1950s, enrollments at the Barker Memorial Center continued to grow, as did the population of the north central region of the state. By the early 1960s, Purdue began planning for a new regional campus that could more adequately serve the needs of the area. In May 1962, Purdue University, through the Ross-Ade Foundation, purchased 160 acres south of Michigan City near Westville at a location that could best serve the residents of LaPorte and Porter counties.

Since 1967, the campus has undergone many changes, indicative of the rapid growth and increasing educational demands of the area. Additional land purchases added to the original 160 acres bring total acreage to 281.

The campus consists of three main buildings. Schwarz Hall, built in 1967, contains administrative offices, including the offices of Admissions and Registration, as well as the Biology / Chemistry, Math / Physics and Social Sciences academic sections. The Library-Student-Faculty Building, completed in 1975, houses the library, the cafeteria, the bookstore, Dean of Students and various student services offices, as well as the Nursing and Letters and Languages academic sections. The Technology Building was completed in 1995. It houses the Computing Center, Learning Center and Office of Continuing Education, as well as the Technology / Engineering, Education, General Business and Developmental Studies academic sections, and other administrative services.

The Indiana Commission for Higher Education designated Purdue University North Central as a general purpose institution in October 1986, reflecting a continuing social and economic impact upon its service area.

Purdue University North Central is accredited by the Commission on Institutions of Higher Education of the North Central Association of Colleges and Schools, 30 N. LaSalle St., Suite 2400, Chicago, Ill. 60602-2504; 800-621-7440. Accreditation attests to the quality of the faculty and staff, excellence of courses and curricula, and adequacy of facilities. Individual academic programs also are accredited by the following:

- Association of Collegiate Business Schools and Programs, 7007 College Blvd., Suite 420, Overland Park, Kan, 66211; 913-339-9356;
- National League for Nursing Accreditation Commission (NLNAC), 350 Hudson St., New York, N.Y. 10014; 800-669-9656, ext. 153;
- National Council for the Accreditation of Teacher Educators (NCATE), 2010 Massachusetts Ave. NW, Suite 500, Washington, D.C. 20036-1023,
- Technology Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET), 111 Market Place, Suite 1050, Baltimore, Md. 21202; 410-347-7700 for the Electrical Engineering Technology, Industrial Engineering Technology and Mechanical Engineering Technology programs.

ORGANIZATION

Purdue University North Central operates as an integral part of Purdue University. Faculty members hold their appointments in Purdue departments and teach courses under departmental control. With the exception of the associate degree in general business, all degree programs are under the aegis of cognizant Purdue University West Lafayette faculty. The curriculum for General Business is governed by the Community College Faculty Council of Purdue University North Central. Course numbers and content are similar for all campuses of the University and readily transfer within the Purdue University system, except for certain courses in the Community College. Faculty members receive promotion through a University-wide promotion system.

PURPOSE

Purdue University is dedicated to service in the land grant tradition. As a regional campus, Purdue University North Central continues this tradition by bringing the educational opportunities of a great University to an increasing number of students who might otherwise not be able to share the benefits of the University.

It is the function of Purdue University North Central to provide courses and programs for regular full-time university students working toward degrees. At the same time, it is also the purpose of the institution to make similar opportunities available to part-time students, many of whom are pursuing their educational objectives in the evening. As a member of the community of northern Indiana, Purdue University North Central has a strong obligation to provide educational opportunities, both credit and noncredit, related to the nature of the population and the social, economic, and industrial development of the area.

MISSION STATEMENT

Working within the general missions of Purdue University, the North Central campus is dedicated to providing educational services for the residents of LaPorte, Porter, Starke and surrounding counties. This includes developing and offering academic programs to meet local needs, as well as offering traditional Purdue University programs for degree seeking students. To fulfill this mission, Purdue University North Central provides the following:

Undergraduate Degree Programs

To fulfill the primary mission of offering undergraduate degree programs, the North Central campus conducts certificate and associate degree programs appropriate to its region. In addition, the campus provides a number of certificate, associate degree and baccalaureate degree programs under the aegis of the West Lafayette campus.

Transfer Programs

To meet the needs of students who plan to transfer to other universities or to other Purdue campuses, the North Central campus provides selected courses in addition to the degree programs offered at the North Central campus.

Developmental Programs

To provide access to higher education for area residents whose previous academic training precludes their admission to a degree program, the North Central campus offers a developmental program which is designed to bridge the gap between a person's current educational qualifications and the skills necessary to participate in degree programs.

Graduate Program

To meet the needs of area educators, the North Central campus offers a master's degree program in elementary education and selected graduate offerings in other fields under the aegis of the Graduate School of Purdue University.

Continuing Education

To meet the needs of area residents and the business and industrial communities, the campus provides credit and non-credit courses during day and evening hours, on weekends, on campus, off-campus and at on-site locations.

Regional Technical Services

To meet the needs of area business and industry for technical expertise, the North Central campus provides technical assistance and consultation through its faculty, staff and programs.

Prison Program

To contribute to the rehabilitation of the large inmate population located in its service region, the North Central campus conducts general business certificate and associate degree programs and the liberal studies baccalaureate program at the Westville Correctional Facility.

Collaborative Programs

To augment and enhance the educational opportunities available to area residents, the North Central campus has entered into a Public/Private Partnership with Valparaiso University to provide a baccalaureate degree in nursing for graduates of the North Central campus associate degree nursing program.

The North Central campus has also entered into a cooperative Associate of Science degree program with the Lakeshore Medical Laboratory Training Program which prepares students for entry-level positions as medical laboratory technicians. This program is administered through Purdue North Central's Biology/Chemistry Section.

Research

To continue in the tradition of a land-grant university, a modest research program involving faculty, staff and students is supported.

UNDERGRADUATE GENERAL EDUCATION POLICY

General education is the component of the undergraduate curriculum devoted to those areas of knowledge, methods of inquiry, and ideas that the Purdue University North Central academic community believes are fundamental and common to all well-educated individuals. General education provides knowledge and understanding of the world, which serves as the basis for continued learning. This educational experience encourages students to develop the ability to represent views and ideas clearly and cogently, analyze, think critically, and formulate reasoned conclusions. Thus, the fundamental and common general education concepts and experiences are infused and enhanced within all program curricula, whenever possible, to assist students in the acquisition of skills, knowledge, attitudes and competencies required to live and serve meaningfully in an uncertain and complex society.

As a result of the general education curricular component at Purdue university North Central, a student shall have acquired appropriate skills, knowledge and competencies to:

- Communicate clearly and cogently in written, oral, interpersonal and collaborative forms;

- Use quantitative and analytical reasoning; use problem solving and critical thinking techniques; approach problems using methods of inquiry appropriate to the discipline;

- Have a working and functional knowledge within the area of computer technology, especially as it relates to communication skills, reasoning skills, problem solving/critical thinking skills and methods of inquiry.

Furthermore, as a result of the general education curricular component at Purdue University North Central, a student shall have had the opportunity to acquire the appropriate skills, knowledge, and competencies to:

- Understand and recognize the significance of human interactions and cultural diversities;

- Understand and recognize the significance of the historical, contemporary, political, cultural and artistic events that have shaped cultures and societies;

- Understand and recognize the significance of moral and ethical values in the decision making process.

EDUCATIONAL OPPORTUNITIES

Purdue University North Central offers the educational opportunities of a great university to an increasing number of students who might otherwise not be able to share its benefits. Although academic work at a number of different levels is offered, the emphasis primarily is on:

- Complete master's degree program in elementary education and selected graduate courses in a limited number of subject-matter fields;

- The bachelor's degree curriculum in biological sciences;

- The bachelor's degree curriculum in elementary education;

- The bachelor's degree curriculum in English;

- The bachelor's degree curriculum in liberal studies;

- The bachelor's degree curriculum in mechanical technology;

- The bachelor's degree curriculum in organizational leadership and supervision, with several degree options;

- Associate degree curricula in architectural technology, building construction management, civil engineering technology, computer technology (programming); electrical engineering technology, food service and lodging supervision, general business (with several options), industrial engineering technology, mechanical engineering technology, medical laboratory technology, nursing, organizational leadership and supervision with human resources option, and associate of science for students in the sciences, mathematics and engineering;

- Certificate curricula in business and professional communication, computer technology, food service specialist, general business, health office administration, human resources, mechanical engineering technology, professional supervision, quality control, and staff benefits administration;

- Freshman and sophomore courses offered in areas leading to the Bachelor of Science or the Bachelor of Arts degrees at another Purdue campus or at other colleges or universities. In order to complete the baccalaureate degree in one of these programs, transfer to another campus is necessary. Since the work taken at the North Central campus carries regular Purdue University credit, transferability to other universities presents no problem when transferring between compatible curricula;

- The Community College offers post-high school opportunities to a broad range of students. Based on the concept of "open admission," the Community College provides an opportunity to overcome high school deficiencies and gain admission to one of the regular curricula of the University. Some of the Community College programs are not available on other campuses;

- Saturday Program—A limited number of courses on Saturday mornings and afternoons are offered to meet the needs of students who are unable to attend classes during the week.

- Off-Campus Sites—Courses are offered at various locations within the region to meet the needs of students who live some distance from the campus. Most sites offer basic liberal arts courses as well as introductory computer, business and supervision courses. Currently, the campus offers classes at the following sites:

  LaPorte—Basic liberal arts as well as business and supervision courses are offered at a number of locations each semester;

  Michigan City—Basic liberal arts as well as computer, business and supervision courses are offered at several locations each semester;

  Boone Grove—Basic liberal arts as well as business and supervision courses are offered at Boone Grove High School each semester;

  Knox—A limited number of basic core courses and courses leading to a certificate in organizational leadership and supervision are available each semester;

  North Judson—Introductory computer literacy courses are offered at North Judson High School each semester.

  Portage—Courses allowing a student to complete an associate degree in supervision or general business, as well as a certificate in general business are available through evening classes at Portage West High School. A full schedule of basic liberal arts courses also is offered;

  Valparaiso—Located in the Eastport Centre, basic courses required in most degree programs are available both daytime and evening;

  Winamac—Introductory computer literacy courses are offered at Winamac High School each semester.

NON-CREDIT CONTINUING EDUCATION

As part of its educational mission Purdue University North Central offers non-credit continuing education courses in these general areas:

- **Training for Business, Industry and School Corporations.** Conferences and short courses for professional development are offered, as well contract training programs customized to meet an individual customer's needs.

- **Real Estate Licensing.** Licensed by the State of Indiana, the office holds preparatory courses for both real estate salespersons and brokers. Nine-week courses are offered in both fall and spring.

- **Personal Development.** A broad schedule of courses is offered throughout the year, including courses to enhance computer skills. The Super Saturday / Super Summer program is conducted for high ability children in grades K-8.

ADMISSION

GENERAL REQUIREMENTS

All persons wanting to take advantage of the opportunity for higher education at the North Central campus of Purdue University must file an application for admission. Address requests for information and application forms to:

Office of Admissions
Purdue University North Central
1401 S. US 421, Westville, Indiana 46391-9528

Applicants to the University must be high school graduates or G.E.D. recipients (see G.E.D. section on page 14). Prospective students should complete the application according to instructions and then forward the form to the high school from which they are to be or already have graduated. The high school should then complete the application and return it to the Office of Admissions at the above address.

High school students should apply during their seventh semester of high school, or as soon as possible thereafter. High school graduates should apply immediately. This enables the University to evaluate fully an applicant's eligibility for consideration and to notify the applicant at an early date of the action taken, thus allowing the applicant to make educational plans.

ADMISSION REQUIREMENTS

An admissions decision is made after an evaluation of the student's total record. Quality requirements include subjects taken, grades in academic courses, high school rank, test scores, and counselor's evaluation. An individual's eligibility for consideration will depend upon many factors, among them:

1. Subject matter requirements for the school or program to which the student is applying;
2. High school class standing;
3. College Entrance Examination Board test results;
4. High school comments and recommendations;
5. Previous college work, if any.

Quality Requirements are listed on page 12.

HIGH SCHOOL SUBJECT MATTER REQUIREMENTS				OVERALL QUALITY REQUIREMENTS
School/Program	**Mathematics**	**Lab Science**	**English**	
Engineering*	3 semesters algebra 2 semesters geometry 1 semester trigonometry	4 semesters	8 semesters	upper 1/2
Science		4 semesters	8 semesters	upper 1/2
Health Sciences		4 semesters	8 semesters	upper 1/2
Management		2 semesters	8 semesters	upper 1/2
Prepharmacy	3 semesters algebra 2 semesters geometry 1 semester trigonometry	6 semesters (incl. 2 each: biology & chemistry)	8 semesters	upper 1/2
Economics‡	3 semesters algebra 2 semesters geometry 1 semester trigonometry	2 semesters	8 semesters	upper 1/2
Medical Lab Technology Liberal Arts Education	2 semesters algebra 2 semesters geometry	2 semesters	8 semesters	upper 1/2
Consumer & Family Sciences	4 semesters academic math†	2 semesters	8 semesters	upper 1/2
Agriculture	6 semesters academic math†	4 semesters	8 semesters	upper 1/2
Technology	2 semesters algebra 2 semesters geometry	2 semesters	8 semesters	upper 1/2
Nursing **	4 semesters academic math†	4 semesters (incl. 2 each: biology & chemistry)	8 semesters	selective
Bachelor of Physical Education	2 semesters high school math	2 semesters	6 semesters	upper 2/3
Community College Bridge	No specific subject matter requirements			High School graduate or GED
General Business	2 semesters algebra		6 semesters	upper 1/2 .

* Engineering requires 4 semesters of laboratory science, including 2 semesters of chemistry.

† Academic math includes algebra, geometry, trigonometry, calculus, etc. Not included are: pre-algebra, general math, computer math, consumer math, business math, etc.

‡ Economics major offered jointly by the Schools of Liberal Arts and Management. Application should be made to the School of Liberal Arts.

** Nursing application deadlines: Fall – the preceding Dec. 15; Spring - the preceding April 15.

TEST SCORE REQUIREMENTS

The SAT or ACT examination is required of all applicants who graduated from high school within the last three years. The SAT or ACT is recommended but not required of applicants who graduated more than three years ago. For applicants currently attending high school, it is preferred that the SAT or ACT examination be taken in the spring of the junior year.

ALTERNATIVE ACTIONS ON APPLICATIONS

On the basis of the factors considered, one of the following actions will be taken on the individual's application:

1. Granted unqualified regular admission—this means that the applicant has met all entrance standards and requirements for admission.
2. Admitted to the Community College—this applies to the applicant whose academic background and preparation do not meet the entrance standards and/or requirements, but who the University feels has potential for gaining regular admission at a later date.
3. Admission on probation—this means admission with the warning of the University that the applicant is academically deficient. If the applicant does not achieve a specified average in the first semester, the student will be dropped from the University. (See guidelines in the section on Scholastic Probation.)

Any admission to the University is provisional pending the receipt of all required student information. The University reserves the right to cancel any admission if a student fails to provide all necessary credentials, or if fraudulent statements are made by the applicant on the application for admission.

INTERNATIONAL STUDENTS

Applicants from other countries will be admitted on the basis of credentials certifying to the completion of preparatory studies comparable to requirements for United States citizens applying at the same entry level. Applicants must also furnish evidence of adequate financial support for the entire period of their schooling. Like all new students, applicants also must take the Student Assessment and Measurement tests prior to registration.

Official English translations must accompany transcripts and other credentials. The applicant must submit satisfactory evidence of the ability to read, write and speak English, as shown by a score of 550 on the TOEFL (Test of English as a Foreign Language) test is required.

TRANSFER STUDENTS

An applicant transferring from another college or university must fulfill the following requirements in order to be considered for admission:

1. Submit an application for admission and an official high school tran-

script. High school transcripts are required of all students who do not hold a Bachelor's degree.

2. Submit an official transcript of work done in institutions previously attended to the Office of Admissions at the North Central campus.
3. Meet subject matter requirements, have a C average and be in good standing at all schools attended.
4. Submit a $30 transcript evaluation fee.

TRANSFER CREDIT

Transfer credit will be given at Purdue University for courses of equivalent content successfully completed at another accredited college. Advanced standing will be determined on the basis of these credits.

Grades are not transferred; only credit in the course is recorded.

Credit earned at other institutions will be evaluated by the faculty of the appropriate section or school in terms of how it fulfills the graduation requirements at Purdue University. Evaluation of credit is completed after a student is admitted to the University.

GENERAL EDUCATIONAL DEVELOPMENT (G.E.D.)

Prospective students who have earned a G.E.D. diploma should complete the application according to instructions, attach a copy of their G.E.D. test results, and forward the forms to the high school they last attended.

Qualified G.E.D. students are admitted to the Community College Bridge Program which is designed to serve as a bridge from the student's present academic level to a level of competency needed for a successful performance.

NON-DEGREE STUDENTS

Persons who wish to take advantage of the instruction in any of the departments of the University without becoming a candidate for a degree may be admitted as non-degree students. Such students must present evidence that they are qualified to enroll in courses and must progress satisfactorily in their work.

A non-degree student is generally limited to enrolling in a maximum of seven hours per semester during the fall and spring semesters, and is generally limited to enrolling in no more than four hours during the summer session. A student may apply no more than 18 semester hours of work completed as a non-degree student toward an undergraduate degree at Purdue University.

A personal interview with a member of the Office of Admissions staff prior to admission as a non-degree student is strongly encouraged. All course work taken in non-degree status will be reviewed for applicability prior to admission to a degree program.

All students who have been previously enrolled in another institution must be in good scholastic and social standing prior to enrollment at Purdue. Application for admission as a non-degree student should be made directly to the Office of Admissions at the North Central campus.

SUPERIOR HIGH SCHOOL STUDENTS

A high school student with a superior scholastic record during the first three years of high school may qualify for admission to the North Central campus as a non-degree student without high school graduation.

The regular entrance requirements are supplemented by certain objective measurements of the student's fitness to advance to the university level. By this means, the University endeavors to recognize and provide for individual rates of learning and achievement.

A high school student will be considered for admission if he or she:

1. Has a superior school record;
2. Is strongly recommended by the high school principal or guidance director;
3. Is recommended by parents for college entrance without high school graduation.

Purdue cannot be held responsible for guaranteeing high school diplomas under this arrangement, but it cooperates with whatever arrangement the state or local school system may have for awarding a high school diploma to a successful participant in this plan.

RE-ENTRY STUDENTS

Any person in good standing who has formerly attended Purdue but has not been in attendance for a semester or more must submit an application for re-entry which may be obtained from the Registrar's Office. Each individual situation will determine the status of the person's eligibility for re-entry.

RE-ADMISSION OF STUDENTS

Any person who has been formally dropped from the University for academic reasons and wishes to re-enter must apply for re-admission to the Scholastic Delinquencies and Re-admissions Committee. Forms for initiating this procedure are available in the Registrar's Office at the North Central campus.

STUDENT ASSESSMENT AND MEASUREMENT

All beginning undergraduate students and transfer students admitted without appropriate credit are required to take the Student Assessment and Measurement, to establish their skill level in English composition, math and reading. Appropriate placement in the proper course level is vital to academic success, especially in the first semester. This must be completed prior to registration.

The assessment is offered through the Developmental Studies Section at various times and dates throughout the year. There is no fee. Contact the Office of Admissions or the Developmental Studies Section secretary for information.

ADVANCED PLACEMENT AND ADVANCED CREDIT

Advanced placement means that a student is placed in an advanced-level course but no credit toward a degree is awarded for prior courses.

Advanced credit means that college credit is established in one or more subjects and the total credit is recorded on the student's record. Advanced credit usually involves advanced placement.

The student who has taken a college preparatory program, has achieved at a high level, and has good test results should seriously consider the possibility of establishing advanced credit. Personal factors as well as academic record should be considered. The table on the following page shows credit hours awarded for Advanced Credit. Advanced credit or advanced placement can be established by any of the following methods.

- Advanced credit examinations. Any questions about advanced credit should be directed to the Office of Admissions.

- The College Board Achievement Test. Credit can be established on the basis of test results taken at the completion of the advanced placement course in high school. The score required to establish credit varies according to the test.

- College Board Advanced Placement Program. Credit can be established on the basis of test results taken at the completion of the advanced placement course in high school. The score required to establish credit varies according to the test.

COLLEGE-LEVEL EXAMINATION PROGRAM (CLEP)

This program evaluates non-traditional college-level education such as independent study, correspondence work, and credit earned from non-accredited institutions.

1. General Examination.
   Credit will be given on the basis of the General Examination only for the English Composition exam with essay. Transfer students who previously attended a nonaccredited institution may take the General Examination. If the student's average score is 500 or above on the five tests, the credit established at the non-accredited institution may be evaluated for credit at Purdue.

2. Subject-Matter Examinations.
   Purdue credit may be established by taking the subject-matter examinations listed on page 18.

ADVANCED CREDIT (AP)

Subject Area	College Board/Advanced Placement (AP) Score	Purdue Course	Purdue Credit Granted (Sem. Hrs.)
Art			
Art history	3, 4, or 5	A&D 226	3
Studio art	3, 4, or 5	A&D 113	3
Biological sciences	4 or 5	BIOL 121, 122, 131, & 132	8
Chemistry	3	CHM 111	3
	4 or 5	CHM 115 & 116	8
Economics			
Micro & Macro	3, 4, or 5 (on both tests)	ECON 210	3
English	3	ENGL 101	3
Language & Comp.	4 or 5	ENGL 103	3
Literature & Comp.	4 or 5	ENGL 231	3
Government			
American govt./politics	4 or 5	POL 101	3
Comparative govt./politics	4 or 5	POL 141	3
History			
American	4 or 5	HIST 151 & 152	6
European	4 or 5	HIST 104	3
Mathematics			
AB	4 or 5	MA 161	5
BC	4 or 5	MA 161 & 162	10
Foreign languages	3	101 & 102	6
(French, German	4	101, 102, & 201	9
Spanish)	5	101, 102, 201, & 202	12
Physics			
C Electricity & Magnetism	5	Refer to Section/Dept.	
B	5		

College-Level Examination Program (CLEP)

CLEP General Exam	Purdue Equivalent	Credit	Score Required
English composition w/essay	ENGL 103	3	490

CLEP Subject-Matter Exam	Purdue Equivalent	Credit	Score Required
Accounting, introductory	GBA227	3	45+
American history I	HIST 151	3	50+
American history II	HIST 152	3	50+
Biology, general	BIOL 121, 122, 131, 132	8	48+
Business management, introduction to	MGMT Undistributed	2	45+
Calculus, with elementary functions	MA 165 & 166	10	55+
Chemistry, general	CHM 100	3	55+
	CHM 101 & 102	7	70+
	CHM 111	3	50+
	CHM 111 & 112	6	65+
	CHM 115	4	55+
	CHM 115 & 116	8	70+
College algebra—trigonometry	MA 151	5	57+
College comp. w. essay	ENGL 103	3	60+
Education psychology	EDPS 230	3	51+
Human growth and development	CDFS Undistributed	3	45+
Psychology, general	PSY 120	3	47+
Sociology, introductory	SOC 100	3	45+
Western civilization I	HIST 102 & 103	6	50+
Western civilization II	HIST 104	3	50+

AUDITING CLASSES (VISITORS)

A person who is not already enrolled as a student in the University and who wishes to attend a course in the University without credit shall obtain a visitor's permission form from the Registrar's Office and complete it, stating the visitor's name, the number of the course, the date of attendance permitted, and the fact that no credit is to be allowed. The Registrar shall issue a visitor's permit upon written recommendation of the instructor and approval by the head of the section administering the course. No person who is ineligible for readmission by reason of that person having been dropped from the University for scholastic or other reasons shall be eligible to attend classes as a visitor.

A person who has status in the University by reason of admission to and registration in a definite classification may enroll in a course as a visitor. The assignment and enrollment must be completed by the regular procedure for visitor registration. The assessment of fees and determination of allowable load shall be in accordance with the credit value or equivalent of the course(s) involved. A visitor in a course shall be entitled to hear lectures, recitations, and oral quizzes. A visitor shall not participate in classroom exercises except as invited by the instructor. The visitor shall neither submit papers, when tests or examinations are given, nor take part in laboratory work. A visitor shall receive no credit for the course. However, if the visitor has been, is, or shall be registered later as a student in the University, then that person may apply for examination for credit, under the usual rules, in the course which was attended as a visitor.

RESERVE OFFICER TRAINING

The Dean of Students has information on the ROTC program in which Purdue University North Central students may participate through cooperative programs with Purdue Calumet and Indiana University Northwest. Students planning to transfer to the West Lafayette campus are eligible, upon transfer, for a two-year advanced ROTC program leading to a commission in the Army, Navy or Air Force. The program is available to anyone having four full academic semesters remaining on the West Lafayette campus, including graduate school.

HOUSING

Purdue University North Central is a commuter institution. Housing accommodations are not available on the campus. However, many apartment facilities exist within a 5-10 mile radius. It should be understood that there is no public transportation available to the campus.

INTERNSHIPS AND PLACEMENT SERVICES

The Placement Office administers an internship program that matches students with local employers in their area of career interest. The office also offers a number of services to students and alumni, including individual job search counseling, a resume referral service, job search information such as research guides and career guidance resources, current federal employment listings, connection to other placement services within the Purdue system, on-campus interviews with area employers, and two annual job fairs.

FINANCIAL AID

The Financial Aid staff works with both prospective and current students in finding sources of financial aid for their college educations and completing the application process. Purdue University North Central participates in Title IV federal, state and campus-based financial aid programs. To take advantage of all options available, students should contact a financial aid officer well in advance of the semester in which they plan to register.

TYPES OF ASSISTANCE

Financial aid takes two forms: gift assistance and self-help. Gift assistance includes Federal Pell Grants, Indiana Higher Education Awards, Federal Supplemental Education Opportunity Grants and scholarships. Several tuition remission programs, including Child of Disabled Veteran tuition remission and Valedictorian/Salutatorian tuition remission also are available. Self-help includes Federal Stafford Loans (subsidized and unsubsidized), Parent Loans for Undergraduate Students (PLUS), Perkins Loans and Federal Work Study. Details on both gift assistance and self-help can be obtained from the Financial Aid office.

THE APPLICATION PROCESS

Applying for student financial aid is an annual activity that begins many months before the time the aid will be needed. The Free Application for Federal Student Aid (FAFSA) – or, for previous filers, a Renewal FAFSA – is the key to determining the kind and amount of assistance a student can receive. Students who submit the FAFSA by March 1 prior to the academic year they will be attending will be considered for all available types of financial aid. Those filing after the March 1 priority date can be considered only for federal financial aid programs. Students must complete the FAFSA; in addition, students and/or families may be required to submit other documentation such as federal tax returns.

REGISTRATION

ADVANCE REGISTRATION

Approximately midway through each semester, opportunity is provided to register for the following semester. Advance registration eliminates standing in line and assures preferential scheduling. Advanced registered students are billed for fees and may pay fees by mail or in person. New students will be informed by the Admissions Office of registration times. Every effort should be made to register at these times. The first week of the advance registration period is reserved for students who are fully admitted to the academic program.

DELAYED REGISTRATION

For students unable to participate in the advance registration process, a registration period is held just prior to the beginning of classes. Consult the current semester schedule for dates and times or contact the Registrar's Office.

LATE REGISTRATION

The late registration period for the fall and spring semesters ends on Friday of the first week of classes. In the summer session, the late registration period ends on Wednesday of the first week of classes. Registration during this period will incur a late registration fee (see Fee section).

SCHEDULE REVISIONS

Schedule revisions may occur following the beginning of a semester or session and are governed by policies intended to be uniformly administered across the various schools of the University. Students may revise their schedules in accordance with the following policy:

- **Course Additions, Change of Level, Change of Pass/Not-Pass Option**. A student may add a course, change course level, or change the pass/not pass option during the first four weeks of a semester or the first two weeks of a summer session by obtaining on the schedule revision form the signatures of the academic advisor and the instructor of the course to be added or changed, if in their judgments the student could satisfactorily fulfill the course objectives. In the case of extenuating circumstances, course changes may be made during weeks five through nine of a semester or during weeks three through four and one-half of a summer session, upon recommendation of the student's academic advisor, instructor, and head of the department in which the course is listed. Such course changes shall not be made during the last seven weeks of a semester or three and one-half weeks of a summer session.

Week	Restrictions
1	Approval of academic advisor.
2-4	Approval of academic advisor and instructor.
5-9	Extenuating circumstances only. Approval of academic advisor, instructor, and head of the department in which the course is listed.
10-16	Not permitted.

- **Cancellation of Assignment.** Students shall receive a grade for every course in which they are assigned–unless the course assignment has been properly cancelled at the Registrar's Office upon presentation by the student of a request approved by the academic advisor. If there are extenuating circumstances, these must be stated on the request. When a course assignment is cancelled prior to the end of two weeks of a semester or one week of a summer session, the course will not be recorded on the student's record. When a course assignment is cancelled after two weeks and prior to the end of four weeks of a semester or after one week and prior to the end of two weeks of a summer session, a grade of W shall be recorded.

After four weeks and prior to the end of the twelve weeks of a semester or after two weeks and prior to the end of six weeks of a summer session a course assignment may be cancelled upon the request of the student with the approval of the academic advisor. The instructor shall indicate whether the student is passing or failing, unless the student is classified as a freshman or a non-degree student. If the student is not passing, the case may be referred by either the student or the instructor to the Dean of Students, who, after consultations with the dean or the designee of the student's school and other appropriate University agencies, shall determine whether there are sufficient extenuating circumstances beyond the student's reasonable control to justify the cancellation of the course assignment without a failing grade.

No course assignment shall be cancelled within the last four weeks of any semester or two weeks of a summer session.

A student's enrollment in a course may be cancelled for excessive absences by the Committee on Scholastic Delinquencies and Readmissions upon the recommendation of the instructor with the concurrence of the academic advisor and the approval of the dean of the student's school. The appropriate directed grade shall be recorded.

Week	Restrictions
1-2	Approval of academic advisor; course will not be recorded.
3-4	Approval of academic advisor, course will be recorded with grade of W.
5-12	Approval of academic advisor. The instructor shall indicate whether the student is passing or failing. A grade of W, WF, or WN will be recorded. In case of a W, WF, or WN exceptions shall be determined by the Dean of Students. Undergraduate students with a semester classification of 0 and fewer than 31 hours of college credit, or with a semester classification of 1 or 2, need not have their instructor's signature. Grades recorded for these students will be W.
13-16	Course assignments cannot be cancelled during this period.

The cancellation of all course assignments constitutes withdrawal from the University. Cancellation of all course assignments as a result of withdrawal shall be treated and recorded in the same manner as the cancellation of a single course assignment with the additional provision that the Dean of Students shall determine and assign the appropriate effective date to the withdrawal.

EXCEPTIONS

Exceptions to the preceding regulations for registration, schedule revision, and cancellation of assignment may be made for courses that do not span the regular semester or summer session.

CLASS ATTENDANCE

Students are expected to be present for every meeting of the classes in which they are enrolled. All matters relative to attendance, including making up of work missed, are matters for arrangement between the student and instructor involved. It is expected that all instructors will, at the beginning of the semester, make a clear statement to all of their classes regarding their policy for handling absences. Students who fail to meet their class engagements satisfactorily may be denied credit for exercises missed. The instructor will be responsible for counseling with the student whose absences endanger the student's academic performance. A problem of excessive absences may be referred to the Dean of Students by either the instructor or the student if further information is needed or if either feels that further discussion would resolve the problem. Instructors obtaining information concerning the absence of a student due to personal factors are requested to report such knowledge at once to the Dean of Students. If a student is absent from all the meetings of any regularly scheduled class for a period of two successive weeks, the student may be reported to the Dean of Students for appropriate action. If a student becomes seriously delinquent in attendance, the student may be dropped from the course by the Committee on Scholastic Delinquencies and Readmissions. Attendance is mandatory for financial aid Title IV recipients.

ALLOWABLE ACADEMIC LOAD

A student's academic load shall be arranged, so far as possible, in accordance with the following policy:

Credit hours in excess of 18 hours during a regular session should be carefully monitored by the academic advisor, who may wish to consult with appropriate University personnel concerning the student's prognosis for success. Unless the student's curriculum requirement for that session is specified as greater than 18 credit hours, approval by the section chairperson of the student's curriculum and by the Vice Chancellor for Academic Services must be obtained before the student may be assigned more than 18 credit hours.

In summer session, no one may be assigned to more than nine credit hours without approval by the section chairperson of the student's curriculum and by the Vice Chancellor for Academic Services.

ASSIGNMENT TO INTENSIVE COURSES

An intensive course is one that meets for four weeks or less. No person shall be permitted to register in two intensive courses in the summer session at the same time. In general, no one who is taking an intensive course shall be permitted to take another non-intensive course at the same time, except, in special cases, with the approval of the instructor in the intensive course, the head of the department administering the intensive course, and, for graduate students, the dean of the Graduate School.

ASSIGNMENT TO A DEPENDENT COURSE

A student who received a grade of F or N in any course shall not be admitted to any dependent course (one requiring the failed course as a prerequisite as set forth in this catalog), and any assignment to or enrollment in such dependent course shall be cancelled. Enrollment in a dependent course may also be cancelled if the student has not taken the prerequisite course or otherwise satisfied the stated requirements for enrolling in the course.

A student who received a grade of E, I, or PI in any course may be admitted to a dependent course on trial with the approval of the appropriate section chairperson administering the course. A transfer student deficient in prerequisite courses may also be admitted to a dependent course on trial with the approval of the section chairperson. If any student on trial is reported delinquent, the student's assignment to the course may be cancelled upon the recommendation of the instructor and with the concurrence of the department head.

If a student on trial in a dependent course completes the course with a passing grade, his achievement may, by prior agreement, be construed as satisfying the requirements for changing an E grade in any prerequisite course in the same department, provided the section chairperson approves and reports the change of grade properly to the Registrar. However, satisfactory work in a dependent course shall not relieve the student of the requirement to complete required work in any prerequisite course in which a grade of I, or PI (incomplete) was received. None of these provisions shall deprive a student of the opportunity to resolve a grade of E, I, or PI in the normal manner.

TRANSFER TO ANOTHER PURDUE CAMPUS

Upon the completion of any semester or summer session a student may transfer enrollment from the North Central campus to another Purdue University campus. To initiate this process the student must complete an appropriate form available through the Admissions and Placement Office. Following this procedure an Authorization for Enrollment form from the intended campus of registration and instructions for registration will be sent to the student.

Community College students must be admitted to a school of Purdue University before they are eligible to transfer. Bridge students must meet all deficiencies and be academically admissable to a desired program prior to seeking admission to another school.

UNIVERSITY FEES

Fees are set by the Board of Trustees of Purdue University and are subject to change by the Board without notice.

COURSE FEES

As a regional campus, Purdue University North Central has a fee structure different from that at the West Lafayette campus. Fees are based on an established amount per credit hour. In addition, a laboratory fee will be charged if the course includes laboratory work. In general, a student will be considered a resident for tuition purposes if that student has lived in the State of Indiana for at least the 12 months preceding the first day of classes for the semester in which admission is sought.

Graduate students who have received baccalaureate degrees will pay higher fees than undergraduate students unless they are:

1. Pursuing an additional baccalaureate degree in a discipline different from that of the baccalaureate degree currently held;
2. Enrolling in undergraduate courses clearly for personal enrichment or occupational requirements and no intent exists toward pursuing an advanced degree.

Questions concerning the policy or the classification of an individual student should be addressed to the Registrar. Refer to the latest schedule of classes for the credit hour and laboratory fee schedule or call the Office of the Registrar.

OTHER FEES

Student Service Fee. All students will pay a student service fee. The fee is refundable at the same percentage as class fees.

Technology Fee. All students will pay a Technology fee. The fee is refundable at the same percentage as class fees. The money from this fee is used to purchase computers and other technology equipment for student use.

Late Registration Fee. There is a late registration fee assessed per course with a set maximum total. This fee is assessed if the student registers on or after the first day of classes. The fee is nonrefundable.

Breakage Fees. Course fees include the cost of normal breakage and wear and tear on equipment. An additional charge will be levied against individuals for excessive waste, loss, or breakage that may occur. Such special charges must be paid before course credit will be given.

Encumbrance Fee. If a student fails to fulfill any financial obligation to various University departments, that student's records will be encumbered and a fee will be assessed to the student by the department that issued the encumbrance.

Prior to the assessment of the encumbrance fee, the student will be advised in writing of the outstanding financial obligation and will be given a specified time to settle the account.

If a student's records are encumbered because of outstanding financial obligation, that student will not be allowed to register for an additional semester at Purdue University, nor will a student's transcript be released until the financial obligation and encumbrance fee are paid.

REFUNDS

If a student withdraws, course fees will be refunded as follows:

	Refund Percentage	
Period of Withdrawal	Fall & Spring Semesters	Summer Session
First week	100	100
Second week	60	40
Third week	40	0
Fourth week	20	0
Fifth week	0	0

Title IV students are subject to Title IV refund policies. See the current semester schedule under "refunds" for details. A copy of the refund schedule also is available in the Bursar's Office, 127 Schwarz Hall.

To be eligible for a refund, students must complete the necessary withdrawal forms in the Registrar's Office.

Course Withdrawal. In order to effect a withdrawal from any class, a student must complete a drop card approved by an advisor and submit it to the Registrar's Office. Discontinuance of class attendance is not the basis for withdrawal, and students who do not notify the Registrar's Office when they plan to withdraw will be given a failing grade in each course involved. Complete regulations governing withdrawal are in the Registration section of this bulletin.

INSURANCE

Low-cost University accident and health insurance is offered annually to all students carrying an academic load of three credit hours or more. Students may enroll in this program at the beginning of each semester. A brochure with application form and description of the coverage will be mailed directly to the student by the insurance company. Information is also available in the Bursar's Office.

GRADING

ASSIGNING OF GRADES

Instructors will assign a grade for each course in which the student is enrolled at the close of a session. The student shall be responsible for the completion of all required work by the time of the last scheduled meeting in the course unless the assignment to the course has been properly cancelled. The grade shall indicate the student's achievement with respect to the objectives of the course.

For Credit Courses:

A— highest passing grade.
B
C
D— lowest passing grade; passing minimal objectives of the course.
E— conditional failure; failure to achieve minimal objectives, but only to such limited extent that credit can be obtained by examination or otherwise without repeating the entire course. This grade represents failure in the course unless and until the record is duly changed within one semester. It cannot be changed to a grade higher than a D.
F— failure to achieve minimal objectives of the course. The student must repeat the course satisfactorily in order to establish credit in it.
P— passing grade for the pass/not pass option; equivalent to grade A, B, or C.
N— not passing for the pass/not pass option. Issued when the student's grade would be a D or F under the letter grade option.

Pass/Not Pass Option. The pass/not pass option provides students with the opportunity to broaden their educational foundations with minimal concern for grades earned. The option is open to all students in the University subject to the regulations of the school in which the student is enrolled. Subject to the regulations of each curriculum, this option may be elected in any course which does not already appear on the student's academic record and in which the student is otherwise eligible to enroll for credit with letter grade. A student may not elect this option for more than 20 percent of the total credit hours required for graduation.

A student who is enrolled in a course under this option has the same obligations as those who are enrolled in the course for credit with letter grade. In reporting final grades in the course, the instructor will report that any such student who would have earned a grade of A, B, or C has passed the course, and that any other such student has not passed.

For Incomplete Work, either credit or noncredit:

I— incomplete; no grade; a temporary record of work which was interrupted by unavoidable absence or other causes beyond a student's control, and which work was passing at the time it was interrupted. An instructor may require the student to secure the recommendation of the Dean of Students that the circumstances warrant a grade of incomplete. The student must achieve a permanent grade in the course no later than the 12th week of the second subsequent semester of enrollment, or the I grade will revert to a failing grade. If the student is not enrolled for a period of three years following the semester in which the incomplete is given, then the incomplete grade will be permanent. The grade will not revert to a failing grade, nor will the student be able to earn credit for the course by completing the work.

PI—incomplete, for pass/not pass option. Has the same provisions as the I for letter grade option.

Directed Grades. The Registrar is directed to record the following grades and symbols under special circumstances:

W—withdrew; a record of the fact that a student was enrolled in a course and withdrew or cancelled the course after the second week of the regular semester.

WF— withdrew failing; a record of course cancellation during the fifth to ninth week of the regular semester, at which time, according to a statement from the instructor, the student was not passing. This grade counts in all respects as a failing grade. A grade of WF may be directed by the Committee on Scholastic Delinquency and Re-admissions.

WN—withdrew not passing; the same as WF for a credit course taken under the pass/not pass option except that it does not affect index computations.

IF— unremoved incomplete failing; for a credit course in which a student received an I grade, a directed record of the student's failure to achieve a permanent grade by the 12th week of the second subsequent semester of enrollment. This grade counts in all respects as a failing grade.

IN— unremoved incomplete; not passing for a credit course taken under the pass/not pass option under which the student received a PI grade. The same as an IF grade except that it does not affect index computations.

GOOD STANDING

For purposes of reports and communications to other institutions and agencies and in the absence of any further qualification of the term, a student shall be considered in good standing unless he or she has been dismissed, suspended, or dropped from the University and has not been readmitted.

SCHOLARSHIP INDEXES

The scholarship standing of all regular students enrolled in programs leading to an undergraduate degree shall be determined by two scholarship indexes, the semester index and the graduation index.

1. The semester index is an average determined by weighting each grade received during a given semester by the number of semester hours of credit in the course.

2. The graduation index is a weighted average of all grades received by a student while enrolled in the curriculum plus all other grades received in courses taken in other curricula offered by the University and properly accepted for satisfying the requirements of the curriculum of the school in which the student is enrolled. With the consent of the appropriate academic advisor, a student may repeat a course. In the case of courses which have been repeated, or in which conditional grades have been removed by examination, or for which a substantially equivalent course has been substituted, the most recent grade received shall be used.

3. For the purpose of averaging, each grade shall be weighted in the following manner:

A– 4 x semester hours = index points
B– 3 x semester hours = index points
C– 2 x semester hours = index points
D– 1 x semester hours = index points
E,F,WF,IF– 0 x semester hours = index points
P,N,I,PI,W,WN,IN not included

REQUIREMENTS FOR DEGREES

ASSOCIATE DEGREE

To earn an associate degree, a student shall satisfy the following:

1. The completion, either by Purdue course work, as directed credit, or by credit accepted from another institution, of the plan of study underlying the degree. Deans of schools may refuse to accept as credit toward graduation any course which was completed 10 or more years previously. Former students shall be notified immediately of all such decisions upon re-entering. Waivers or substitutions may be made by the school conferring the degree.

2. Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of course work required and approved for the completion of the degree. Students are normally expected to complete the entire second year in residence; however, with approval by the school concerned, students who have at least three semesters of resident study may complete not to exceed 16 semester hours of the second year, in another approved college or university. For the purpose of this rule, two summer sessions may be considered as equivalent to one semester.

3. Registration, either in residence or in absentia, as a candidate for the

desired degree during the semester (or summer session) immediately preceding its conferment.

4. A minimum graduation index of 2.00 shall be required for graduation.

A student who has completed all other requirements for an associate degree, but has failed to meet the quality requirements may register for additional courses with the approval of an authorized representative of the dean of the school after a review of the student's record. The additional courses which the student may take after meeting all quantity requirements shall not exceed 10 credit hours. Credit in these additional courses must be established within three years of the date on which all degree requirements except the minimum graduation index were met. The student will be considered as having met the quality requirement for graduation if the student's graduation index, including the above extra courses, meets the quality standard in effect at the time when all other graduation requirements were satisfied.

BACCALAUREATE DEGREE

To earn a baccalaureate degree from Purdue University, a student shall satisfy the following requirements:

1. The completion, either by resident course work, as directed credit, or by credit accepted from another institution, of the plan of study underlying the degree. Deans of schools may refuse to accept as credit toward graduation any course which was completed ten or more years previously. Former students shall be notified immediately of all such decisions upon re-entering. Waivers or substitutions may be made by the school conferring the degree.

2. Resident study at Purdue University for at least two semesters and the enrollment in and completion of at least 32 semester hours of course work required and approved for the completion of the degree. These courses are expected to be at least junior-level courses. Students are normally expected to complete the senior year in residence; however, with approval by the school concerned, a student who has had four semesters of resident study may complete the last year or a portion of it at another college or university, provided that the number of semester hours of credit to be taken does not exceed 25 percent of the total hours required for the degree. The foregoing stipulations do not apply to students who earn credit elsewhere through a contract or arrangement entered into by the University or one of its academic units.

3. Registration, either in residence or absentia, as a candidate for the desired degree during the semester (or summer session) immediately preceding its conferment.

4. A minimum graduation index of 2.00 shall be required for graduation. Some teacher education programs require minimum indexes higher than 2.00.

A student who has completed all other requirements for a baccalaureate degree, but has failed to meet the quality requirements may register for additional courses with the approval of an authorized representative of the dean of the school after a review of the student's record. The additional courses which the student may take after meeting all quantity requirements shall not exceed 20 credit hours. Such a student may take in another approved college or university not more than nine of the 20 credit hours permitted, provided such courses are approved in advance in writing by an authorized representative of the dean of the student's school. A copy of such approval must be filed in the Office of the Registrar. Credit in these additional courses must be established within fiveyears of the date on which all degree requirements except the minimum graduation index were met. The student will be considered as having met the quality requirement for graduation if the student's graduation index, including the above extra courses, meets the quality standard in effect at the time when all other graduation requirements were satisfied.

ADVANCED DEGREES

Requirements for the several master's degrees, for the Educational Specialist, and for Doctor of Philosophy degrees are established by the Graduate Council and are stated in the Graduate School Bulletin and the regulations of the Graduate School. In general, these requirements include the following:

1. The filing of an appropriate plan of study for the advanced degree, and the approval of that plan by the department or school head, the school dean, and the dean of the Graduate School.

2. The demonstration of proficiency in English prior to filing the plan of study.

3. The completion of a substantial portion of the plan in residence, as described in the bulletin. Course credits earned by a student whose graduate study has been inactive for five years or more are normally excluded.

4. The completion of a thesis for all doctoral degrees and for thesis-option master's degrees.

5. Successful completion of such written and/or oral examinations specified by the various schools and departments.

MULTIPLE DEGREES

Upon special request approved by the deans of the schools concerned and filed with the Registrar at the beginning of the final semester (or summer session), a student may be registered as a candidate for more than one degree.

MEETING DEGREE REQUIREMENTS

Specific deadlines for the various requirements for graduate degrees are outlined in the Graduate School Bulletin and must be met as specified. All degree requirements for undergraduate and professional degrees are to be met as of the end of the academic session in which the degree is to be conferred. In the event that academic requirements for an undergraduate or professional degree have not been met as of the end of the session, the candidate's school may grant an extension of time, not to exceed 30 calendar days following the end of the session, for these requirements to be completed in order for the degree to be conferred for that session.

Academic requirements which have not been completed, as of the end of the 30-day period, shall disqualify the student from receiving the degree in the intended session and shall delay the conferring of the degree until the end of the next session in which the student is duly registered and all degree requirements have been completed.

SCHOLASTIC PROBATION

A student shall be placed on probation if the student's semester or graduation index at the end of any regular semester is less than that required for a student with a classification as shown in Table A below.

A student on probation shall be removed from that status at the end of the first subsequent semester in which the student achieves semester and graduate indexes equal to or greater than those required for a student with a classification as shown in Table A.

Any grade change due to reporting error will result in a recalculation of the index and determination of probation status.

TABLE A. INDEX LEVELS FOR PROBATION

S = Semester Index; G = Graduation Index

Classification	S	G
0 and 1	1.5	1.5
2	1.5	1.6
3	1.6	1.7
4	1.6	1.8
5	1.7	1.9
6	1.7	2.0
7	1.7	2.0
8 and up	1.7	2.0

DROPPING OF STUDENTS FOR SCHOLASTIC DEFICIENCY

A student on scholastic probation shall be dropped from the University if at the close of any semester in which the student's graduation index is less than that required in Table B or if the student receives six credit hours or more of failing (F, WF) grades for the semester. This rule shall not apply for the semester in which the student completes all requirements for a degree. A student dropped by this rule and later duly readmitted as a regular student shall be readmitted on probation.

TABLE B. INDEX LEVELS FOR DROPPING

G = Graduation Index

Classification	G
0 and 1	1.3
2	1.4
3	1.5
4	1.6
5	1.7
6	1.8
7	1.9
8 and up	2.0

Applications for readmission to the University from students who have been dropped for academic reasons must be accompanied by a check or money order, not cash, for $50 made payable to Purdue University. Processing of the application will not begin until the fee is paid. Applications may be obtained from the Registrar's Office.

SCHOLASTIC RECOGNITION

Chancellor's List. At the conclusion of each semester, the registrar shall indicate which undergraduate students are scholastically eligible to be included on the Chancellor's List. To be cited on the Chancellor's List for any one semester, a student must:

1. Have at least 12 credit hours included in the graduation index;
2. Have at least 6 hours included in the semester index;
3. Attain at least a 3.5 graduation index;
4. Have at least a 3.0 current semester index.

Semester Honors. At the conclusion of each semester, the registrar shall indicate which undergraduate students are scholastically eligible for Semester Honors. To be cited, a student must:

1. Have at least 6 credit hours included in the semester index;
2. Attain at least a 3.5 semester index;
3. Have at least a 2.0 graduation index.

DEGREES WITH DISTINCTION

Degrees are awarded at the end of each semester and summer session to candidates who have completed the requirements of their schools. At each of these periods, degrees with distinction are awarded to those completing the undergraduate plans of study under the following general University rules:

1. A candidate for the baccalaureate with distinction must have earned at least 65 hours of credit at Purdue. A candidate for an associate degree with distinction must have earned at least 35 hours of credit at Purdue. To qualify for distinction, the student's graduation index for all work completed must be at least 3.30.

2. The minimum graduation index for graduation with distinction in each school shall be no less than the 90th percentile of the graduation indexes of the graduates in each school, for the spring semester, provided that the index is at least 3.30. The minimum graduation index so determined in the spring for each school shall be applied for graduation with distinction for the subsequent summer session and fall semester.

3. Of those graduates who qualify for distinction under these rules for the spring semester, the three-tenths of the baccalaureate graduates having the highest graduation indexes shall be designated as graduating with highest distinction, irrespective of the schools from which they graduate. The three-tenths of the spring associate degree graduates having the highest graduation indexes will be designated as graduating with highest distinction.

The minimum graduation indexes so determined for graduation with highest distinction shall be applied for graduation with highest distinction for the subsequent summer session and fall semester.

STUDENT SERVICES

DEAN OF STUDENTS OFFICE

The staff of the Dean of Students Office, Room 103 of the Library-Student-Faculty Building, offers services in the following areas:

- **Personal Counseling.** Short-term, confidential individual counseling is available, free of charge, for a variety of personal problems. Referral to outside services is available as is necessary and appropriate.

- **Career Counseling.** Assistance is available for individuals who have not clarified their immediate or long-range vocational goals, or are dissatisfied with their present majors in college.

- **Educational Counseling.** Services are provided to students experiencing difficulty in their academic work. Help with study techniques, scheduling of study time and other problems related to academic performance are offered. The office also provides advisors for students who have not established career objectives.

- **Testing.** Individual tests relating to aptitude, personality, mental ability and career interest are available on request. Also a specially developed test battery is available for both enrolled and non-enrolled students. A fee is charged.

- **Computer-based Career Assessment.** "Discover," a computerized career guidance program, contains the latest occupational and educational information to assist students in career planning. This service is free to enrolled students.

ACADEMIC ADVISING

Upon admission to the University, each student is assigned an academic advisor who is available to provide information on policies, procedures and programs of the University. The advisor also will assist students in exploring educational and career objectives. In addition, students will be informed of the wide range of educational opportunities at the University, pertinent to their objectives.

STUDENT SUPPORT SERVICES (sSs)

Funded by the U.S. Department of Education, sSs is designed to assist low income, first-generation college students and students with disabilities to maximize their academic potential and achieve their academic goals. A professionally trained staff provides academic and personal support including counseling, assistance in obtaining financial aid, diagnostic testing, test interpretation, assistance in development of an appropriate plan of study, orientation to college, remedial and developmental work, educational, and academic counseling. Students with disabilities are assisted in making arrangements which will allow them to enjoy full access to the educational opportunities of the University.

For more information or to apply for sSs, a student need only contact the sSs Office, located in Room 104 of the Library-Student-Faculty (LSF) Building. The necessary forms and instructions are available to any interested individual. Validation of eligibility will be required at the time of application to the program. Staff members are available to consult with students regarding eligibility and services.

CHILD CARE

The Little Boilermaker Child Care Center, located in Room 135 of the Library-Student-Faculty Building, provides convenient, high-quality care for the children of students, faculty, and staff members. The Center offers a variety of activities for children, enabling them to explore various activities and interests. Children between the ages of 2 and 9, provided they are toilet trained, are eligible to participate in the program. Prior to using this service, a parent must complete all enrollment forms and purchase a child care fee sheet. More information is available at the Child Care Center or from the Dean of Students Office.

STUDENT ACTIVITIES/ATHLETICS OFFICE

Recognizing the diverse student population on campus, this office provides numerous opportunities to accommodate the interests of the student body. Student participation is encouraged in planning activities, and students are asked to express their needs and desires.

- **Activities and Events.** Throughout the year, programs of entertainment, cultural and educational value are held for the benefit of the students. Some are sponsored by the Student Senate or other organizations; others are sponsored by the Chancellor and by the Student Activities / Athletics office. Most of these programs are free and many are open to the public.

- **Student Organizations.** A number of student organizations are active, many of which were formed in response to student interest or request. Some clubs extend student involvement in their academic major; others promote social, political, community or spiritual interests. The Student Government is quite active, composed of 12 representatives elected by the student body each spring. The Spectator, a student-operated newspaper is published periodically during Fall and Spring semesters.

- **Recreational Sports.** A comprehensive package of recreational activities includes intramural sports, fitness activities, outdoor recreation and special events. Campus facilities for recreation include tennis/basketball courts, Fitness Center, locker rooms, a baseball/intramural complex, a 1-mile walking/jogging trail and an indoor game room.

- **College/Club Sports.** Purdue University North Central men's basketball and baseball teams play small colleges and universities in the Midwest. The campus also fields men's and women's cross-country teams. Additional club sports programs can be started if sufficient student body interest exists. A cheerleading squad supports athletics and other campus events.

HONOR SOCIETIES

- **Alpha Sigma Lambda.** This national honor society for nontraditional/adult students recognizes the academic achievements of those who continue their higher education while facing competing interests of family, community and work.

- **Epsilon Pi Tau.** This international honorary is open to outstanding students, teachers and administrators in technology education, and technology professionals.

- **Beta Beta Beta.** Dedicated to improving the understanding and appreciation of the biological sciences, this national honor society has chapters at 380 colleges and universities.

- Student chapters of these professional engineering societies are associated with the Technology/Engineering Club: **American Society of Mechanical Engineers, Institute of Industrial Engineers** and **Institute of Electrical and Electronics Engineers.**

FACILITIES TO ASSIST LEARNING

- **Library.** Located on the second floor of the Library-Student-Faculty Building, the library provides open stacks of books, interlibrary loan, reference and bibliographic collection, periodicals, audiovisual equipment and many other services. Computers link students to reference sources around the world. Rooms are available for group study or viewing videotapes.

- **Computer Lab.** The main computer lab for student use is Room 265, Technology Building. There, access includes more than 100 terminals with a variety of software, e-mail and Internet connections. Students may also arrange to use computers in special areas around campus such as the Macintosh lab, the CAD labs and the library.

- **Learning Center.** Students can drop in to improve their understanding of math, chemistry, economics, biology and foreign languages through computer tutorials, videotapes and other learning supplements. There are also study tables for individual and group learning, as well as facilities for taking courses via satellite. This facility is located in Room 157, Technology Building.

- **Writing Center.** Peer tutoring and other resources for grammar, spelling, punctuation and other writing skills are available in this center, located in Room 14, Library-Student-Faculty Building.

- **Tutors.** Tutoring is available in selected courses. Students should ask their instructors and/or academic advisors about the availability of tutoring. Tutoring also is offered through Student Support Services and the Writing Center.

PLANS OF STUDY

The following pages present first those programs that can be completed at the North Central campus which include bachelor's degree programs in six majors, 13 associate degree programs, one master's degree and other selected graduate offerings. All degrees, with the exception of those in General Business of the Community College, are offered under the jurisdiction of the appropriate schools of Purdue University. The curricula for General Business is governed by the Community College Faculty Council of Purdue University North Central.

In addition to degrees offered on campus, students may begin study at Purdue University North Central in almost any subject matter area offered on any campus of Purdue University or other major American university. In general, the transfer program listings outline the first two years of work appropriate for transfer to one of the academic units on another Purdue University campus. Programs especially tailored to meet the requirements of other universities will usually be constructed so that students may take up to two years of course work at the North Central campus. ***Note:*** *Course requirements vary among different major programs. Course sequencing may vary among individual students.* ***Consult your advisor for guidance.***

Not all courses listed in the following plans of study are offered at Purdue University North Central, nor are all offered every semester. Some courses may have to be taken at one of the other campuses of Purdue.

Plans of Study for degrees as listed in this bulletin are specific to the Purdue University North Central campus. Program and course requirements may vary from campus to campus. Therefore, it is the student's responsibility to investigate these variances in degree requirements prior to making a campus transfer.

ABBREVIATIONS

The following abbreviations of subject fields are common to all University bulletins concerned with academic programs. They are used in the plans of study and descriptions of courses sections of this bulletin.

A&D	Art & Design
ART	Architectural Technology
ASTR	Astronomy
BCHM	Biochemistry
BCM	Building Construction Management
BIOL	Biological Sciences
BTNY	Botany/Plant Pathology
CDFS	Child Development and Family Studies
CET	Civil Engineering Technology
CHM	Chemistry
CPT	Computer Technology
CS	Computer Sciences
COM	Communication
ECON	Economics
EDCI	Education
EDFA	Education
EDPS	Education
EE	Electrical Engineering
EET	Electrical Engineering Technology
ENGL	English
ENGR	Engineering
FLL	Foreign (General) Language and Literature
F&N	Foods and Nutrition
FNR	Forestry and Natural Resources
FR	French
GEOS	Geosciences
GER	German
GNC	Community College – Bridge
GBA	Community College – Accounting
GBG	Community College – General
GBH	Community College – Health Office Administration
GBI	Community College – International Business
GBM	Community College – Marketing
GNT	General Studies – Technical Writing
GS	General Studies
HIST	History
H&S	Health Science – Elementary Education
HSCI	Health Science – – Medical Laboratory Technology
IDIS	Interdisciplinary Studies
IET	Industrial Engineering Technology
MA	Mathematical Sciences
ME	Mechanical Engineering
MET	Mechanical Engineering Technology
MGMT	Management
MUS	Music
NUR	Nursing
OLS	Organizational Leadership and Supervision
PCTX	Pharmacology
PE	Physical Education, Health, Recreational Studies
PHIL	Philosophy
PHYS	Physics
POL	Political Science
PSY	Psychological Sciences
RHIT	Restaurant, Hotel, Institutional Management & Tourism
SOC	Sociology
SPAN	Spanish
STAT	Statistics
TG	Technical Graphics
THTR	Theatre

BACHELOR'S DEGREE PROGRAMS

BACHELOR OF SCIENCE IN BIOLOGICAL SCIENCES

The goals of biology are to describe the living world—microorganisms, plants, and animals—and to understand the phenomena that distinguish the living from the non-living world. The principal themes that concern biological scientists are individuality, structure-function relationships, heredity, nutrition and metabolism, growth and development, behavior, integration and regulation, evolution, and the interaction of organisms with each other and their environment.

The knowledge provided by basic biological research can be applied to critical practical problems in health and medicine, agriculture and the management of other renewable resources, industry, and pollution and population control.

Since one person can neither comprehend the total biological world in detail nor master all available techniques, individual biologists tend to focus on relatively few aspects of biology. Historically, an array of specializations has arisen, based on :

- the type of organism studied: for example, botany, entomology, microbiology, and zoology;
- the environment in which the organism is found: terrestrial, marine, arctic, tropical biology, etc.;
- the principal tools and methodologies used: biochemistry, bioengineering, biomathematics, biophysics, microscopy, field work, etc.;
- the level of biological organization: molecular, cell, organismal, and population biology;
- the type of phenomena studied: structural biology, genetics, physiology, developmental biology, ecology, systematics, evolutionary biology, neurobiology, etc.;
- the application of biology: medicine and other health-related fields, agriculture, forestry, fisheries, microbial conversions, food processing, pollution control, etc.

All biological specialties depend on the study of basic biological principles – the key generalizations that dominate research and the application of that research to biological problems. An awareness and understanding of such fundamental principles are sometimes difficult to achieve in a curriculum where biological systems are segregated into traditional animal, microbial, and plant courses. For these reasons, an undergraduate program in biology will be based on a sequence of courses, called the "core," which describes and discusses basic biological principles at all levels of biological organization, from the molecular to the ecosystem. This sequence will provide a solid foundation and yet allow maximum flexibility for specialization in a variety of biology fields.

The Biological Sciences degree program is offered at the North Central campus in conjunction with the School of Science of Purdue University at West Lafayette. The three broad areas of concentration in this major are:

1. General biology[†]
2. Biology teaching[*,+]
3. Preprofessional studies[††]

PROFESSIONAL OPPORTUNITIES

Purdue-educated biologists function in many ways: as technicians, technologists, and scientists in industry, government, hospitals, and academic institutions; as teachers in high schools and community colleges; and given additional talents and training, as science writers, editors, illustrators, and sales personnel in pharmaceutical, hospital, and scientific supply industries. Many graduates later earn an M.S. or Ph.D., preparing them for positions that involve teaching and research in universities or in industrial or medical laboratories. A basic education in biology is good preparation for advanced work in various aspects of applied pharmacy; agriculture; dentistry; medicine; genetic counseling, marine biology; optometry; veterinary medicine; behavioral sciences; biomedical and environmental engineering; forestry; and wildlife, range, and water management.

GENERAL DEGREE REQUIREMENTS

The biology core consists of a sequence of four courses (lecture and laboratory) that all undergraduate majors must take. The sequence begins with an overview of the evolutionary development of organismal diversity and ways organisms interact with their environment and each other. This is followed by a course that introduces the principles of plant and animal development and explores the relationship between their structure and function. The third course includes the study of how cells are structurally organized and how they function. Finally, students are introduced to the principles of genetics and the molecular mechanisms of gene expression, mutation, and replication.

[†] To graduate, you must complete at least 32 credit hours of Purdue University (non-transfer) credit, and at least 32 credit hours in course work at the 300 level or above.

[*] Because of the complexities involved in the Teacher Education program, students interested in the biology teaching option ***must transfer to PU/WL by their junior year.*** They should also contact a biology education advisor at PU/WL by the end of their freshman year to discuss the details of the Teacher Education program.

[+] It is also possible to become certified in secondary education after completing a B.S. in biology. This usually requires two to three semesters of post-secondary work.

[††] All students interested in Preprofessional studies (Pre-Dent, Pre-Med, Pre-Physical Therapy, Pre-Vet) are strongly encouraged to complete the B.S. degree in Biology. Pre-Dent majors must take BIOL 213/214 and CHM 533 (BIOL 322/323 and BIOL 533/534 are recommended). Pre-Med majors should take BIOL 213/214, BIOL 322/323, BIOL 533/534, BIOL 537, and CHM 533. Pre-Vet majors must take ECON 210, COM 114, CHM 533 (BIOL 322/323 recommended).

In addition to the core and elective biology courses, students majoring in biology must take certain courses in chemistry, mathematics, and physics, as well as English, foreign language, humanities, and the social sciences. In meeting the various requirements (in the following summary), a student automatically fulfills the School of Science graduation requirements of 124 semester hours.

Students majoring in the biological sciences have the choice of focusing or broadening their education by the selection of electives; courses are offered in many aspects of biology. Usually, they take these specialized courses after the sophomore year. **Contact the Biological Sciences and Chemistry Section offices to obtain detailed plans of study for the B.S. in Biological Sciences.**

BIOLOGY CORE (18 credit hours)			**credit hours**
BIOL	121-122	(Diversity, Ecology, and Behavior)	(4)
BIOL	131-132	(Development, Structure, and Function of Organisms)	(4)
BIOL	231-232	(Cell Structure and Function)	(5)
BIOL	241-242	(Genetics and Molecular Biology)	(5)

ADDITIONAL BIOLOGY CREDITS (approximately 15 credit hours)

Each student majoring in biology is required to select additional hours of upper-division biology courses beyond the core. These courses can be selected based on the student's interest in specific areas of biology.

GROUP A*

BCHM	561	(General Biochemistry I)	(3)
BCHM	562	(General Biochemistry II)	(3)
BIOL	322	(Microbiology)	(3)
BIOL	323	(Laboratory in Microbiology)	(2)
BIOL	411	(Laboratory in Molecular Biology)	(3)
BIOL	415	(Introduction to Molecular Biology)	(3)
BIOL	519	(Molecular Biology of Nucleic Acids	(2)
BIOL	529	(Bacterial Physiology)	(2)
BIOL	531	(Parasitology)	(4)
BIOL	533	(Medical Microbiology)	(3)
BIOL	534	(Laboratory in Medical Microbiology)	(2)
CHM	533	(Introductory Biochemistry)	(3)

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* Other courses may be available for Group A/B. Please check with an advisor for details.

GROUP B*

BIOL	455	(Animal Physiology)	(3)
BIOL	456	(Laboratory in Animal Physiology)	(2)
BTNY	555	(Aquatic Botany)	(3)
BIOL	537	(Immunobiology)	(3)
BIOL	537L	(Laboratory in Immunobiology)	(2)
BIOL	566	(Developmental Biology)	(3)
BIOL	567	(Laboratory in Developmental Biology)	(2)
BIOL	585	(Ecology)	(3)
FNR	388	(Ichthyology)	(2)
FNR	389	(Ichthyology Laboratory)	(1)
FNR	501	(Limnology)	(3)
FNR	523	(Aquaculture)	(3)
FNR	540	(Wetland Ecology)	(3)
FNR	545	(Fisheries Biology and Management)	(3)

UNDERGRADUATE RESEARCH		credit hours
(Independent Studies; BIOL X95's)		
BIOL	195, 295, 395, 495, 595	(1-4)

HONORS COURSES

BIOL	497 (Biology Honors Seminar)	(1)
BIOL	499 (Biology Honors Thesis Research)	(1-4)

NOTE: All courses listed in Groups A & B have a laboratory component except BIOL 519, BIOL 529, BCHM 561, BCHM 562, CHM 533, FNR 523 and FNR 545. If the laboratory has a separate course number (e.g., BIOL 323, BIOL 411, BIOL 456, BIOL 595I or BIOL 567), lecture and laboratory courses should be taken together.

CHEMISTRY *(all majors) (20 credit hours)*

CHM	115[+]-116	(General Chemistry)	(8)
CHM	255-255L 256-256L	(Organic Chemistry)	(8)
CHM	321	(Analytical Chemistry I) *Optional for biology teaching majors.*	(4)

PHYSICS (all majors) (8 credit hours)

PHYS	220-221	(General Physics I and II)	(8)

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* Other courses may be available for Group A/B. Please check with an advisor for details.

[+] **All students who will be enrolling in CHM 115 must take the Chemistry Placement (Diagnostic) Test before the fall semester begins to insure proper placement in CHM 115.** Students with a weak high school chemistry background, should take CHM 111 and CHM 112 before CHM 115 and CHM 116. However, the 6 credit hours for CHM 111/112 will not count toward graduation in the School of Science (effective Fall, 1994).

MATHEMATICS (all majors) (12-13 credit hours)

MA	223-224[+]	(Introductory Analysis I and II)	(6)
STAT	503	(Statistical Methods for Biology)	(3)
CS	220	(Programming I for Engineers and Scientists) **or** other appropriate CS equivalent	(3)

ADDITIONAL REQUIREMENTS (all majors) (27-36 credit hours)

ENGL	103 **or** 101 & 102	(English composition)	(3-6)
Modern foreign language (6 cr. for biology teaching)			(12)
Humanities and social sciences			(18)

FREE ELECTIVES (Approximately 15 credit hours)

Free electives can be selected from any department of the University. However, students are encouraged to take as many courses in the sciences as possible.

UNDERGRADUATE RESEARCH

Undergraduate research is an essential component of the Bachelor of Science degree in the biological sciences at Purdue University North Central. All biology students will be encouraged to work with biology faculty in their research via independent study courses (BIOL X95).

SPECIAL PROGRAMS AND OPPORTUNITIES

HONORS RESEARCH PROGRAM

The Biological Sciences and Chemistry Section sponsors an honors research program to supplement the formal course offerings in the section's degree programs, to increase the breadth and depth of the student's knowledge of modern biology, and to lead to an honors in research degree in biology at graduation. The program offers guided study in biology through independent research.

The requirements for graduation with honors in research are:

1. at least a 3.0 cumulative graduate index;
2. completion of an honors research thesis (BIOL 499) supervised and approved by a member of the biology faculty or by a scientist approved by the Honors Committee, and approved by the Honors Committee and the chairman of the Biology/Chemistry Section; and
3. presentation of an honors seminar (BIOL 497) describing the research.

[+] Students with a weak high school background in math who are unable to start with calculus, must take MA 153 and MA 154 first. However, the 6-credit hours for MA 153/154 will not count toward graduation in the School of Science. NOTE: MA 153/154 is a prerequisite for CHM 115/116; students who wish to take MA 161/162 (10), need only STAT 503 or CS requirement.

SPECIAL ASSIGNMENTS (BIOL X95's)

Students who would like to undertake special study in areas not available through formal course work offered by the Section are strongly encouraged to contact a faculty member whose work is in the area of their interest and arrange to enroll in special assignment courses: BIOL 195, 295, 395 or 495. The special study can be directed readings; independent study, undergraduate research; supervised library, laboratory, or field work; or discussions. Credit will be given for the work, and a title of the area investigated will appear on the transcript. These courses can be repeated for credit. **Undergraduate research is emphasized and encouraged at Purdue University North Central.**

NATIONAL BIOLOGY HONOR SOCIETY - PU/NC CHAPTER

In 1998, the campus was granted a local chapter (Xi Rho) of the Beta Beta Beta Honor Society (XI Rho). It is for students, particularly undergraduates, dedicated to improving the understanding and appreciation of biological study and extending boundaries of human knowledge through scientific research. Since its founding in 1922, more than 145,000 persons have been accepted into lifetime membership, and more that 380 chapters have been established thoughout the United States and Puerto Rico.

CHEMISTRY MINOR for B.S. in Biology (Biology Majors)

Prerequisite Courses

CHM 115	(General Chemistry)	(4)
CHM 116	(General Chemistry)	(4)
MA 161/162	(Plane Analytic Geometry and Calculus I, II)	(10)
or		
MA 223/224	(Introductory Analysis I, II)	(8)

Minor – Consists of at least 16 credit hours beyond general chemistry (CHM 115/116).

A. **Organic Chemistry** (8)
CHM 255/255L (4) or CHM 261/263 (4)
CHM 256/256L (4) or CHM 262/264 (4)

B. **Analytical Chemistry** (4)
CHM 321

C. **Physical Chemistry** (4)
CHM 372

ADDITIONAL OPTION (3)
CHM 533 (Introductory Biochemistry)
Does not replace A-C requirement.

Note: *Purdue University North Central also offers an associate of science degree (Biology Concentration - 64 credit hours). See page 63 for more information.*

BACHELOR OF ARTS IN ELEMENTARY EDUCATION

Purdue University North Central offers a program of study leading to a Bachelor of Arts degree in Elementary Education, in conjunction with the School of Education of Purdue University at West Lafayette. The program is approved by the Indiana Commission on Higher Education and meets NCATE Accreditation standards. Program brochures are available through the Office of Admissions, Office of Student Services, and the Education Section. Those who wish detailed information or who have questions concerning a specific situation should make an appointment to see the academic advisor for the Education Section.

The program of study consists of 133 semester hours of instruction in the liberal arts, fine arts, sciences, social sciences and professional education, as well as carefully designed experimental activities that take place in a public school setting. Each course and experience is designed to prepare students to teach in today's constantly changing, fast-paced, technological world.

GENERAL PLAN OF STUDY *

FRESHMAN YEAR

First Semester	Second Semester
(3) History 151 (American History to 1877)**or** HIST 152 (United States Since 1877) **or** HIST 104 (Introduction to the Modern World)	(3) History 151 (American History to 1877)**or** HIST 152 (United States Since 1877) **or** HIST 104 (Introduction to the Modern World)
(3) MA 130 (Mathematics for Elementary Teachers I)	(3) MA 131 (Mathematics for Elementary Teachers II)
(3) BIOL 205 (Biology for Elementary School Teachers)	(3) BIOL 206 (Biology for Elementary School Teachers)
(3) ENGL 101 (English Compostion I)	(3) GEOS 120 (Introduction to Geography) **or** POL 101 (American Government and Politics) **or** SOC 100 (Introductory Sociology)
(3) Foreign Language	(3) Elective
	(3) English Selective
15	18

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* The School of Education is creating a new General Plan of Study which will take effect Fall 1998. However, specific course changes are not known as this catalog goes to press.

SOPHOMORE YEAR

First Semester

(3) EDCI 204 (Introduction to Elementary and/or Secondary Education)
(3) EDCI 385 (Teaching in a Pluralistic World)
(1) Theory Into Practice I
(2) EDCI 260 (Introduction to Computers in Education)
(3) MA 132 (Mathematics for Elementary School Teachers II)
(3) GEOS 120 (Introduction to Geography) or ASTR 263 (Descriptive Astronomy: The Solar System)
(3) English Selective
17

Second Semester

(3) EDPS 230 (Educational Psychology)
(3) The Inclusive Classroom
(1) Theory Into Practice II
(3) EDCI 311 (Media for Children)
(3) PHYS 210 (The Nature of Physical Science)
(3) MUS 324 (Teaching Music in the Elementary School)
(16)

JUNIOR YEAR

First Semester

(3) EDCI 314 (Teaching the Language Arts in the Elementary School)
(3) EDCI 306 (Teaching Reading in the Elementary School)
(3) EDCI 316 (Teaching Social Studies in the Elementary School)
(2) Theory Into Practice III
(3) A&D 201 (Art for Elementary School Teachers)
(3) Science Elective
(17)

Second Semester

(3) EDCI 307 (Corrective Reading for the Classroom Teacher)
(3) EDCI 315 (Teaching Mathematics in the Elementary School)
(3) EDCI 317 (Teaching of Science in the Elementary School Curriculum)
(2) Theory Into Practice IV
(5) PE 322 (Physical Education in the Elementary School) **and** H&S 320 (Health Education in the Elementary School)
(16)

SENIOR YEAR

First Semester

(3) EDPS 330 (Classroom Management)
(2) Interdisciplinary Curriculum Development Seminar
(1) Theory Into Practice V
(3) EDFA 400 (Social and Philosophical Foundations of Education)
(3) ECON 210 (Principles of Economics)
(3) ENGL 227 (Elements of Linquistics)
(3) Elective
(18)

Second Semester

(13) Student Teaching
(3) Theory Into Practice Seminar
(16)

133 credits needed to graduate.*

NOTE: These course requirements could change while this edition of the catalog is in print. Please consult with the Education Section's academic advisor for current program of study information.

DEGREED STUDENTS SEEKING CERTIFICATION

Individuals with bachelor's degrees in other disciplines may take courses at Purdue North Central leading to certification as an elementary school teacher. Before beginning, they must obtain an evaluation of previous course work and have an individual program of study written for them by the Office of Profession Preparation and Licensure, School of Education, West Lafayette. Procedures outlining how this is done can be found in the booklet *Evaluation Request: Purdue/Non-Purdue Graduate* which can be obtained by contacting the Education Section Office, Purdue North Central.

Because programs of study vary a great deal between individuals due to differences in previous collegiate coursework, those interested in certification are encouraged to make an appointment with the Education Sections's academic advisor to discuss their particular situations.

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* Students must pass the third course in foreign language. Students who find it necessary to take the first and second course prior to taking the third course, will therefore graduate with 138 rather than 133 credit hours. Some students choose to attend Summer School to reduce their academic year course loads.

BACHELOR OF ARTS IN ENGLISH

Purdue University's major in English has been developed by the faculty in the University's Department of English and the School of Liberal Arts of Purdue University at West Lafayette. Students become acquainted with the major literary works of the English language and with the general history of ideas that have shaped world civilizations. Such studies strengthen and refine critical thinking and writing skills, preparing students to participate intelligently in their communities and in their chosen workplaces.

A degree in English traditionally has been considered a step toward careers in teaching, scholarly research or writing. The English program at Purdue University North Central certainly can prepare students to follow one of these paths. English majors also find, however, that their degrees are welcomed in business, the professions, media, technology and government, as well as academia.

All English majors must complete both 54-57 credit hours of core requirements and a 30-hour sequence of English classes.

CORE REQUIREMENTS	**credit hours**
English composition	(3)
Speech communication	(3)
Foreign language (French, German or Spanish at the fourth level)	(3)
Mathematics and statistics	(6)
Natural science (astronomy, biology, geology, chemistry and physics)	(6)
Western heritage	(3)
United States tradition	(3)
Other cultures	(3)
Aesthetic awareness	(3)
Racial and ethnic diversity	(3)
Gender issues	(3)
Individual and society	(6)
Social ethics	(3)
Global perspective	(3)

The major in English supplements the core with courses that survey English and American literature, examine specific literary themes and genres, cover a particular major author or authors, strengthen writing and reasoning skills, and study the English language itself. Some of these courses are specifically required; others represent choices within groupings of courses.

A minor is NOT REQUIRED with this major.

PREREQUISITE: In order to work toward this major, the student must have credit in ENGL 101, 102 and ENGL 227 or the equivalent.

REQUIRED COURSES (30 credit hours)
Choose from the following English courses to meet requirements in each area.

INTRODUCTORY COURSES (9 credit hours)

			credit hours
ENGL	201	(The Nature of Literary Study)	(3)
ENGL	240	(Survey of British Literature: From the Beginnings Through the Neoclassical Period) **or**	(3)
ENGL	241	(Survey of British Literature: From the Rise of Romanticism to the Modern Period)	(3)
ENGL	350	(Survey of American Literature: From Its Beginnings to 1865) **or**	(3)
ENGL	351	(Survey of American Literature: From 1865 to the Post World War II Period)	(3)

MAJOR AUTHORS (3 credit hours)

ENGL	441	(Chaucer's Canterbury Tales)	(3)
ENGL	442	(Shakespeare)	(3)
ENGL	443	(Milton's Major Poetry)	(3)

AREA STUDIES (9 credit hours)

One course from each of three areas: genre studies, historical studies, cultural studies, theoretical studies and English language studies

ELECTIVES (9 credit hours)
Three additional courses in English at the 200 level or above.

Because the bachelor's degree requires 126 credit hours and the core and major requirements include up to 87 credit hours, the student has plenty of opportunity to pursue special interests. Some students elect to pursue a second major. Others complete a minor, although a minor is not required with this degree. Still others sample courses from a variety of areas. The avenue the student chooses depends on academic or career goals. For example, some students choose electives that enhance their understanding of literature, such as history, philosophy or science. Others choose to develop their "marketability" by taking courses in technical areas or business.

ENGLISH TEACHING OPTION

Although the Bachelor of Arts English Teaching option (for teaching English at the high school level) is not available at Purdue University North Central, interested students are able to complete some education courses, all core requirements and all courses required in the English major at the North Central campus. Requirements in education may then be readily completed at one of the Purdue campuses where the degree is offered.

BACHELOR OF SCIENCE DEGREE FOR ASSOCIATE DEGREE TECHNICIANS

The Bachelor of Science (B.S.) degree awarded under the School of Technology's "2 + 2" education plan is unique. A student who follows this plan earns first the associate degree in two years and then a B.S. degree in two more years.

A student is awarded an associate degree upon successful completion of the program. The associate degree signifies that the recipient is educated at that level and is job-ready. Thus, individuals may go directly into well-paying jobs or may elect to continue study.

A student who desires to continue with a formal education may be admitted to one of several baccalaureate programs. Upon successfully completing one of those programs, a B.S. degree is awarded. This provides the background for increased job responsibility.

The baccalaureate program provides the general education which permits the graduate to engage in a significantly broader span of activities. It provides a very important background in interdisciplinary studies and creates a greater potential for the graduate. It also enables the graduate to do additional work in a particular area of specialization.

BACHELOR OF SCIENCE DEGREE IN MECHANICAL TECHNOLOGY

Accredited by the Technology Accreditation Commission (TAC) of the
Accreditation Board for Engineering and Technology (ABET)
111 Market Place, Suite 1050, Baltimore, MD 21202
Telephone: (410)347-7700

Mechanical technology concerns the generation, transmission, and utilization of mechanical and fluid energy and the design and production of tools, machines, and their products.

Graduates of the mechanical engineering technology program, described in the Associate Degree section, are eligible to enter into this two- year capstone curriculum, offered at the North Central campus in conjunction with the School of Technology of Purdue University at West Lafayette. The B.S. program prepares graduates for technical positions in manufacturing and production industries. Technologists fill a wide variety of industrial positions in manufacturing, production, supervision, plant operations, and product development.

The primary goal of the curriculum is to provide all graduates with a solid technical foundation which will enable them to adapt readily to a wide variety of employment opportunities.

GENERAL PLAN OF STUDY*

JUNIOR YEAR

Fifth Semester	Sixth Semester
(3) ECON 210 (Principles of Economics)	(3) ENGL 420 (Business Writing)
(3) EET 214 (Electricity Fundamentals)	(3) MET 313 (Applied Fluid Mechanics)
(3) MA 224 (Introductory Analysis II)	(3) MET Elective
(3) MET 320 (Applied Thermodynamics)	(3) STAT 301 (Elementary Statistical Methods)
(3) CHM 111 (General Chemistry)	(3) Basic Science or Interdisciplinary Elective
(3) CPT 175E (Visual Programming)	(3) Free Elective
(18)	(18)

SENIOR YEAR

Seventh Semester	Eighth Semester
(3) COM 415 (Discussion of Technical Problems)	(3) GNT 220 (Technical Report Writing)
(3) Humanities or Social Science Elective	(3) IET 451 (Monetary Analysis for Industrial Decisions)
(3) MET 382 (Controls and Instrumentation for Automation	(3) MET 400 (Mechanical Design)
(3) MET 344 (Materials II)	(3) MET Elective
(3) MET Elective	(3) Supervision or Management Elective
(15)	(15)

NOTE: *Upper division MET courses are offered on a two-year cycle.*
**The MET associate degree plan of study can be found on page 96.*

ELECTIVES (Mechanical Engineering Technology – Baccalaureate)

Interdisciplinary: 300 or 400 level courses in the following disciplines EET, Engineering, CS, IET.

Social Science/Humanities: English, History, Philosophy, Anthropology, Sociology, Psychology, Economics, Political Science. (Excluded: ROTC, Band, Education)

Basic Science: Chemistry, Mathematics, Physics, Statistics

Supervision/Management: A management or supervision course.

Mechanical Engineering Technology: 300/400 level MET courses which are not required.

BACHELOR OF SCIENCE DEGREE IN ORGANIZATIONAL LEADERSHIP AND SUPERVISION

The baccalaureate program in organizational leadership and supervision was designed with the active assistance of business and industry. The program is offered at the North Central campus in conjunction with the School of Technology of Purdue University at West Lafayette. It was instituted to fill the needs for further education for those who:

- have completed one of the associate degree programs;
- are already employed and who desire courses or programs to advance their knowledge and skills in the field of supervision;
- are majoring in fields which have limited job opportunities and who desire academic work in supervision to make them more employable;
- are bachelor degree graduates from programs with limited career opportunities who want to become more employable by developing their expertise in technical fields.

Several degree options are available and are described in the section following the general plan of study. Plans of study can be obtained from advisors or clerical staff in the Technology/Engineering Section office.

The overall program is designed to prepare students for careers in supervisory management, personnel work, and employee training and development. These careers are found in such organizations as businesses, educational institutions, government agencies, hospitals, and industrial firms. Graduates are employed in these organizations in positions such as supervision, personnel, training and development, accounting, customer service, field engineering, plant engineering, production control, production engineering, process engineering, programming, project engineering, purchasing, quality control, sales, and technical writing.

A 2.00 G.P.A. is required to transfer into this program, and a total of 126 credit hours is required for a Bachelor of Science degree.

GENERAL PLAN OF STUDY

REQUIRED COURSES (30 credit hours)

			credit hours
OLS	240	(Labor Relations Problems)	(3)
OLS	252	(Human Behavior in Organizations)	(3)
OLS	274	(Applied Leadership)	(3)
OLS	331	(Occupational Safety and Health)	(3)
OLS	375	(Training Methods)	(3)
OLS	376	(Human Resource Issues)	(3)
OLS	474	(Conference Leadership)	(3)
OLS	487	(Leadership Philosophy)	(3)
OLS	xxx	Supervision Elective	(3)
OLS	xxx	Supervision Elective	(3)

OTHER REQUIRED COURSES (45 credit hours)

COM	114	(Fundamentals of Speech Communication)	(3)
COM	315	(Speech Communication of Technical Information) **or**	
COM	415	(Discussion of Technical Problems)	(3)
CPT	107	(Computer Literacy) **or**	
CPT	188D	(Microcomputer Database Applications) **or**	
CPT	188S	(Microcomputer Spreadsheet Applications) **or**	
CPT	188W	(Advanced Word Processing) **or**	
CS	140	(Introduction to Data Processing - VISUAL BASIC)	(3)
ECON	210	(Principles of Economics)	(3)
TG	110	(Technical Graphics Communications) **or** CPT Elective	(3)
ENGL	101	(English Composition I)	(3)
ENGL	102	(English Composition II) **or**	
GNT	220	(Technical Report Writing) **or**	
ENGL	420	(Business Writing)	(3)
IET	104	(Industrial Organization)	(3)
IET	250	(Fundamentals of Production Cost Analysis)	(3)
IET	262	(Motion Study and Work Methods)	(3)
IET	266	(Work Measurement and Incentives)	(3)
MA	153	(Algebra and Trigonometry I)	(3)
MA	154	(Algebra and Trigonometry II)	(3)
MGMT	200	(Introductory Accounting) **or**	
GBA	227	(Principles of Accounting I)	(3)
GBG	260	(Business Law)	(3)
STAT	301	(Elementary Statistical Methods)	(3)

ELECTIVES (49-50 credit hours)

Science Selectives†	(6-8)
Technical Selectives††	(27)
General Education Electives†††	(14-17)

GENERAL PLAN OF STUDY

FRESHMAN YEAR

First Semester	Second Semester
(3) COM 114 (Fundamentals of Speech Communication)	(3) GNT 220 (Technical Report Writing) or ENGL 102 (English Composition II)
(3) ENGL 101 (English Composition I)	(3) MA 154 (Algebra and Trigonometry II)
(3) MA 153 (Algebra and Trigonometry I)	(3) OLS 274 (Applied Leadership)
(3) OLS 252 (Human Behavior in Organizations)	(6) Technical Electives ††
(3) CPT 107 (Computer Literacy) or CPT 175E (Visual Programming) **or** ENGR 195E (C or C++ Language Programming for Engineering and Technical Applications)	(3) Elective
(15)	(18)

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† Science selectives from one of the following options: physics, chemistry, biology, astronomy or geoscience.

†† Courses selected as technical electives must be part of an integrated plan with two- and three-course sequences, and must contain material of a more advanced nature than that presented in a required, approved substitute or a previously taken selective course. The student should always consult his or her advisor, because course sequencing may vary. Courses from the following schools are acceptable as approved by the student's academic advisor:
Community College (GBA, GBM and GBG), Engineering, Management (ECON & MGMT), Technology (IET, MET, EET, CPT, CET, ART, CIMT, BC)

††† Courses should contain material of a more advanced nature than that presented in a required or approved substitute course. Exceptions may be allowed for those students who enter the B.S. in organizational leadership and supervision program with associate degrees from other recognized Purdue programs with consent of the section head.

SOPHOMORE YEAR

Third Semester

(3) ECON 210 (Principles of Economics)
(3) MGMT 200 (Introductory Accounting) or GBA 227 (Principles of Accounting I)
(3) OLS 331 (Occupational Safety and Health)
(3) Science Selective †
(3) Elective
(15)

Fourth Semester

(3) IET 104 (Industrial Organization)
(3) OLS 375 (Training Methods)
(6) Technical Electives ††
(3) Elective
(15)

JUNIOR YEAR

Fifth Semester

(3) OLS 240 (Labor Relations Problems)
(3) ENGL 420 (Business Writing)
(3) OLS 376 (Human Resource Issues)
(6) Technical Elective ††
(15)

Sixth Semester

(3) COM 315 (Speech Communication of Technical Information) **or** COM 415 (Discussion of of Technical Problems)
(3) OLS 474 (Conference Leadership)
(3) STAT 301 (Elementary Statistical Methods)
(3) Technical Elective ††
(3) Elective
(15)

SENIOR YEAR

Seventh Semester

(3) IET 250 (Fundamentals of Production Cost Analysis) **or** IET 451 (Monetary Analysis for Industrial Decisions)
(3) TG 110 (Technical Graphics Communications) **or** CPT Selective
(3) OLS 487 (Leadership Philosophy)
(3) Technical Elective ††
(3) Elective
(3) OLS Elective
(18)

Eighth Semester

(3) IET 266 (Work Measurement and Incentives)
(3) OLS Elective
(2) OLS Elective
(3) Elective
(4) Science Selective †
(15)

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†, †† See previous page.

Accounting, General Business or Marketing Emphasis

This baccalaureate specialization is open to students with associate degrees in accounting, general business or marketing or their equivalents. It emphasizes the principles and practices of supervision and the basics of management. Technical electives permit students to orient their programs toward specific segments of the business community.

The primary objective of this program is the education and development of graduates who are career-ready for leadership roles in business, industry, and service agencies. It is a highly individualized, practical, "real-world," people-oriented approach to the practice of supervision. One-on-one counseling enables the student to individualize his or her own program.

Two-thirds of the program is composed of required courses designed to provide necessary supervisory skills such as functional ability, planning, organizing, and controlling. The other one-third consists of electives chosen by the student from a broad range of technical subjects. This enables the student to acquire the technical knowledge he or she wants and needs to function effectively in a high technology society. Above all, the program is thoroughly practical.

Graduates are employed in areas such as supervision, personnel, training and development, customer service, field engineering, plant engineering, production control, production engineering, process engineering, programming, project engineering, purchasing, quality control, sales and technical writing.

An appropriate plan of study for this degree emphasis can be obtained from advisors or clerical staff in the Technology / Engineering Section office.

Computer Programming Technology Emphasis

This program offers a plan of study that prepares students for professional careers in computer information systems and other computer applications. The program emphasizes the design, implementation, and management of large- and small-scale computer-based business systems.

The primary objective is to teach state-of-the-practice undergraduate courses and curricula in applied computing (also known as computer information systems, business data processing, and applied computer science). The curriculum is designed to prepare occupationally ready graduates who:

- understand various computer and information technologies and know how to use them to create applied computer applications that provide competitive advantage to their users.
- understand a wide variety of computer applications and the complex relationships between applications.
- can design, develop, and implement functional and adaptable software to solve business problems.

- can help end-users use modern computer technology to retrieve and organize their own information.
- can conceptualize problems, define user requirements, and design functional and adaptable computer-based systems to meet those requirements.
- understand the critical role of database and telecommunications in computer applications and can design and implement systems to exploit that technology.
- understand business organizations and functions so they can communicate effectively with end users of computing services.
- can work effectively in team situations.
- can communicate effectively, both orally and in writing, with both technical and non-technical audiences.

Graduates are prepared for employment in a wide variety of business, industrial, and consulting environments. Representative entry-level positions include applications programmer, programmer/analyst, marketing representative, systems analyst, database analyst, information analyst and systems engineer. Experienced graduates can expect to fill positions in systems analysis, project management, database administration, computer operations management, data processing management, and possibly non-computing management or executive-line positions.

Electrical Engineering Technology Emphasis

The student who completes the plan of study for the electrical engineering technology (EET) associate degree is eligible for consideration for admission to this B.S. degree program in preparation for a position as a technologist, primarily in the manufacturing industries. The plan provides additional study in electrical engineering technology and courses that provide the background of related technical and non-technical topics that are essential in modern industry. The technologist ordinarily will deal with various components of an overall system designed and developed by engineers. Some become technical supervisors. The technologist's role evolved during the 1970s and 1980s and will continue to evolve in the coming decades as a technically trained "organizer-doer." Graduates are eligible for certification as engineering technologists.

This Electrical Engineering Technology plan of study option offers a variety of elective courses so a student may elect to emphasize certain specialty areas such as automated testing, biomedical electronics, controls, microprocessors, analog and digital communications, local area networks, power systems, computers/digital electronics, and instrumentation. The specific courses advised for a given option depend on the student's background and interests. The number of courses advised (usually three to six) are enough to afford some degree of specialization. Students are required to study a variety of technical subjects to ensure maximum employability.

The primary goal of the department is to provide a solid technical foundation that will enable graduates to perform well in a wide variety of employment situations. The success of our graduates supports the appropriateness of this philosophy.

An appropriate plan of study for this degree emphasis can be obtained from advisors or clerical staff in the Technology / Engineering Section office.

Human Resource Management and Development Emphasis

This curriculum was designed with the cooperation and advice of area human resource executives and is continually updated to meet changing needs of today's workplace. Students choosing this curriculum are preparing for new careers or are developing and updating skills for professional or managerial positions in the fields of personnel, training or organizational development. Graduates will be prepared to:

- Recruit, interview and hire job applicants
- Administer compensation and benefits programs
- Train and develop managers and employees
- Build teams
- Administer EEOC and Affirmative Action programs
- Develop and restructure organizations

The curriculum is designed to give students a deeper understanding of human beings – a quality vital for effectiveness in today's human resource field. Following the suggestions of human resource professionals, courses incorporate current developments in areas such as:

- Compensation and benefits
- Employee relations
- Staffing
- Federal regulations affecting the workplace
- Business management
- Human resource information systems
- Employee training and development
- Organizational development and restructuring

A strong humanities component includes courses in English composition and speech, psychology, American history, literature and foreign language.

The curriculum is planned to meet the needs of both full- and part-time students, with courses in both daytime and evening. It also is flexible enough to allow non-continuous progress should the student be unable to take classes every semester.

Students working toward the bachelor's degree continue studies that emphasize the "human" element in human resources, as well as additional professional studies in current topics. This degree takes the equivalent of four semesters of full-time study beyond the associate degree, and offers increased opportunity for both professional courses and those from general University offerings.

For information on specific course requirements and a plan of study, contact an advisor or clerical staff member in the Purdue University North Central's Technology/Engineering Section office.

Industrial Engineering Technology Emphasis

This major field of specialization is designed to develop technologists to support the problem-solving and decision-making functions in management and to prepare for planning and control, work method analysis, work measurements, robotics, CNC systems, quality assurance and controls and systems and procedures analysis. Practical applications of production-oriented operations, research techniques, data processing and computer programming fundamentals are stressed.

The industrial engineering technologist is often initially employed in the time study, quality control, production control or plant layout department. With increased experience the student may advance within the department, directly assisting a professional industrial engineer, or may become a production supervisor. This broad technical background, together with the human relations background and proficiency in engineering methods and mathematics, enables the industrial engineering technologist to take advantage of opportunities for advancement in many directions.

An appropriate plan of study for this degree emphasis can be obtained from advisors or clerical staff in the Technology/Engineering Section office.

BACHELOR OF LIBERAL STUDIES DEGREE

The liberal studies baccalaureate program was designed by the faculty of Purdue University North Central to meet the educational needs of those students who desire a broad exposure to the humanities, social sciences, physical sciences, mathematics, and technology. The program is offered at the North Central campus in conjunction with the School of Liberal Arts of Purdue University at West Lafayette.

Each student will follow a course of study, appropriately approved by an advisor, which will provide a primary and secondary area of study (concentrations) specifically designed to meet the needs and career goals of the individual. The large number of electives enable the student to pursue areas of personal interest.

In addition, the liberal studies program is designed to permit the individual who has earned credits at other colleges, or in other programs, or who has earned an associate degree, to incorporate previously earned credits into a four-year program which can be completed at Purdue University North Central.

CORE REQUIREMENTS (45 credit hours)	**credit hours**
Composition	(6)
Communication	(3)
Mathematics/Statistics	(6)
Natural Science	(6)
Western Heritage/Social Ethics/Individual & Society	(9)
United States Tradition	(3)
Other Cultures/Global Awareness	(3)
Aesthetic Awareness	(3)
Race/Ethnic Diversity	(3)
Gender Issues	(3)

OTHER REQUIREMENTS (81 credit hours)

- Concept development which may be in either: (12)
  Foreign Languages
  Statistics and Computers

- The primary area of study is established with a minimum of 30 hours (ordinarily distributed among three or more departments) taken beyond the core. The primary area of study must be agreed upon by the student and the academic advisor. The primary areas of study include but are not limited to the examples that follow: (30)
  Humanities: creative arts, foreign literature, literature, philosophy, history
  Social and Behavioral Science: economics, political science, psychology, sociology
  Natural Science and Mathematics: biology, chemistry, mathematics, physics
  Various technology and interdisciplinary areas.

- A minimum of 21 hours must be taken in a secondary area of study. (21)

- Electives (18)

Total Hours Required for Bachelor of Liberal Studies Degree (126)

OTHER REQUIREMENTS AND LIMITATIONS

- A minimum of 30 hours must be taken at the 300 level or above.

- A minimum of 30 credit hours must be taken at Purdue University North Central.

- A minimum or 32 credit hours must be taken at a campus of Purdue University at the junior level or above.

- Students must have a completed plan of study on file with the Social Sciences Section by the middle of the junior year. Otherwise, on-time graduation cannot be assured.

- A maximum of six courses from any one department may be counted toward the fulfillment of the degree requirement. (In exceptional cases, the Liberal Studies Academic Advisory Committee, instituted to oversee the entire Bachelor of Liberal Studies degree program, may extend this maximum course allowance by one course.

- MA 111 is accepted for credit in the School of Liberal Arts.

- English 100 is accepted for credit in the School of Liberal Arts.

- GNC 100 is accepted for credit in the School of Liberal Arts.

- A maximum of 50 percent of the primary area and 50 percent of the secondary area can be transferred courses from universities other than Purdue.

ASSOCIATE DEGREE PROGRAMS

ASSOCIATE OF SCIENCE DEGREE

With emphasis in certain Science and Engineering Fields

This degree program is offered at the North Central campus in conjunction with the School of Science of Purdue University at West Lafayette. The curricula for the various disciplines is essentially equivalent to the first two years of the prescribed baccalaureate degree programs. The Associate of Science degree program requires a total of 64 credit hours distributed as follows:

Core Requirements (43 hours)	**Credit Hours**
Written and Oral Communication Courses	(9)
Mathematics Courses (Calculus Level)	(9)
Science Courses	(16)
Computer Courses	(3)
Humanities and Social Sciences Courses	(6)

Professionally Pertinent Electives (21 Hours) Includes sophomore level discipline specific courses such as science, mathematics, or engineering courses, as well as, other general education courses such as foreign language sequences if these are required in the student's four-year plan of study.

The program of study is designed to enable the student who plans to transfer to another Purdue University campus or other college or university to complete a baccalaureate degree in one of the sciences or in engineering to earn an associate degree at the North Central campus. The sample programs of study detailed below are essentially the first two years of baccalaureate programs in science available at the West Lafayette campus of Purdue University. Students who plan to transfer to other colleges or universities may develop a plan of study for the associate degree with their academic advisors which will conform to the program requirements of the intended transfer institution.

Students in certain agriculture, engineering or health science programs may be able to earn the associate degree. A program of study should be developed with the academic advisor for the School of Science on the North Central Campus.

Biology majors can continue with the BS program in Biology on the North Central Campus. Others can complete a baccalaureate degree in Liberal Studies at PU/NC. Students transferring to other colleges and universities should be able to complete a baccalaureate degree in two years if the course work for the associate degree is selected with the requirements of the intended transfer college in mind.

Sample Programs of Study for selected Science Majors for the Associate of Science Degree

Biology Concentration (64 credit hours)

GENERAL PLAN OF STUDY FOR BIOLOGY

FRESHMAN YEAR

First Semester	Second Semester
(3) ENGL 101 (English Composition I)	(3) ENGL 102 (English Composition II)
(4) BIOL 121/122 (Biology I: Diversity, Ecology and Behavior)	(4) BIOL 131/132 (Biology II: Development, Structure and Function of Organisms)
(4) CHM 115 (General Chemistry)	(4) CHM 116 (General Chemistry)
(3) MA 223 (Introductory Analysis I)	(3) MA 224 (Introductory Analysis II)
(3) Gen Ed course*	(3) Gen Ed course*
(17)	(17)

SOPHOMORE YEAR

First Semester	Second Semester
(3) STAT 503 (Statistical Methods for Biology)	(3) COM 114 (Fundamentals of Speech Communication)
(5) BIOL 231/232 (Biology III: Cell Structure & Function)	(5) BIOL 241/242 (Biology IV: Genetics & Molecular Biology)
(4) CHM 255/255L (Organic Chemistry)	(4) CHM 256/256L (Organic Chemistry)
(3) CS Requirement	(3) Gen Ed course*
(15)	(15)

Chemistry Concentration (64 credit hours)

GENERAL PLAN OF STUDY FOR CHEMISTRY

FRESHMAN YEAR

First Semester	Second Semester
(3) ENGL 101 (English Composition I)	(3) ENGL 102 (English Composition II)
(5) MA 161 (Plane Analytic Geometry & Calculus I)	(5) MA 162 (Plane Analytic Geometry & Calculus II)
(4) CHM 115 (General Chemistry)	(4) CHM 116 (General Chemistry)
(6) Gen Ed course*	(4) PHYS 152 (Mechanics)
(18)	(16)

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* (FL, HU, SOC SCI)

SOPHOMORE YEAR

First Semester	Second Semester
(3) COM 114 (Fundamentals of Speech Communication)	(3) Gen Ed course*
(4) CHM 261/263 (Organic Chemistry)	(4) CHM 262/264 (Organic Chemistry)
(4) MA 261 (Multivariate Calculus)	(4) MA 262 (Linear Algebra and Differential Equations)
(3) CS Requirement	(5) PHYS 251 (Heat, Electricity and Optics)
(14)	(16)

***Note:** If you wish to complete the School of Science foreign language (FL) requirement as part of the AS degree, you must take a FL course each semester.*

Mathematics Concentration (64 credit hours)

GENERAL PLAN OF STUDY FOR MATHEMATICS

FRESHMAN YEAR

First Semester	Second Semester
(5) MA 161 (Plane Analytic Geometry & Calculus I)	(5) MA 162 (Plane Analytic Geometry & Calculus II)
(3) ENGL 101 (English Composition I)	(3) ENGL 102 (English Composition II)
(3) Foreign Language (German preferred)	(3) Foreign Language
(4) Science Elective	(4) Science Elective
(15)	(15)

SOPHOMORE YEAR

Third Semester	Fourth Semester
(4) MA 261 (Multivariate Calculus)	(3) MA 351 (Elementary Linear Algebra)
(3) Foreign Language	(3) Foreign Language
(3) CS 220 (Programming I for Engineers and Scientists)	(4) MA 262 (Linear Algebra and Differential Equations)
(4) Science Elective	(4) Science Elective
(3) Humanities Elective	(3) Elective
(17)	(17)

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* (FL, HU, SOC SCI)

Physics Concentration (64 credit hours)

GENERAL PLAN OF STUDY FOR PHYSICS

FRESHMAN YEAR

First Semester	Second Semester
(3) ENGL 101 (English Composition I)	(3) ENGL 102 (English Composition II)
(4) CHM 115 (General Chemistry)	(4) CHM 116 (General Chemistry)
(5) MA 161 (Plane Analytic Geometry & Calculus I)	(5) MA 162 (Plane Analytic Geometry & Calculus II)
(3) Foreign Language	(4) PHYS 152 (Mechanics)
(15)	(16)

SOPHOMORE YEAR

Third Semester	Fourth Semester
(4) MA 261 (Multivariate Calculus)	(4) MA 262 (Linear Algebra and Differential Equations)
(5) PHYS 251 (Heat, Electricity and Optics)	(4) PHYS 342/342L (Modern Physics/Modern Physics Lab)
(3) Foreign Language	(3) Foreign Language
(4) Elective	(6) Elective
(16)	(17)

Engineering Concentration (64 credit hours)

GENERAL PLAN OF STUDY FOR ENGINEERING, see page 119)

ASSOCIATE OF SCIENCE DEGREE IN GENERAL BUSINESS

The primary goal of the associate degree program in general business is to provide students with above entry-level skills in a variety of business-related disciplines. Upon the completion of the degree, students are ready for employment in any number of business-related fields. General business programs are accredited by the Association of Collegiate Business Schools and Programs. The curriculum is governed by the Community College Faculty Council of Purdue University North Central.

Five majors in business allow each student to choose a specialty based on individual goals. Each major has a series of required courses that make some degree of specialization. Students are allowed to take 20 percent of their credit hours as electives so that interests in other fields may be satisfied and further study in business can be pursued. This allows maximum flexibility for the student. While preparing the student for future employment, it also provides a broad sampling of courses in business. It is ideal for those students who have not decided on a specialty and want to explore business careers.

Students who earn the Associate of Science degree in any of these business programs and otherwise meet entrance requirements may work towards a baccalaureate degree by transferring to the Bachelor of Science program in organizational leadership and supervision or the Bachelor of Liberal Studies program at Purdue University North Central. Some courses in these programs may not be accepted as transfer credits by the Purdue School of Management or business programs at other universities. See the Management Programs in the Transfer Programs section of this bulletin.

The general business program will accept for graduation credit the Pass/No pass option only for courses taught outside the Community College to be counted as electives, and never more than a total of 12 credit hours.

Business Internship Opportunity

Students who have completed Introduction to Business (GBG 127) may elect to participate in the Business Internship program.

The student will work at a local business for an average of 15 hours per week performing duties that relate to the student's major field. An hourly wage will be paid to the student by the employer and, upon successful completion of all Internship requirements, the student will earn credit toward graduation.

CORE REQUIREMENTS (39 credit hours)

COMMUNICATIONS (9 credit hours)

			credit hours
ENGL	101	(English Composition I)	(3)
ENGL	102	(English Composition II) **or**	(3)
GNT	220	(Technical Report Writing)	
COM	114	(Fundamentals of Speech Communication)	(3)

MATHEMATICS (6 credit hours)

MA	153	(Algebra and Trigonometry I)	(3)
STAT	213	(Probability and Decision Theory)	(3)

BUSINESS (24 credit hours)

GBG	127	(Introduction to Business)	(3)
GBG	260	(Business Law)	(3)
OLS	274	(Applied Leadership)	(3)
GBI	301	(Introduction to International Business)	(3)
GBM	329	(Principles of Marketing)	(3)
GBA	227	(Principles of Accounting I) **or**	(3)
MGMT	200	(Introductory Accounting)	
ECON	210	(Principles of Economics) **or**	(3)
ECON	251	(Microeconomics) **or**	
ECON	252	(Macroeconomics)	
CPT	107	(Computer Literacy) **or**	(3)
		a computer course appropriate to the student's level of interest and ability and as approved by an academic advisor.	

MAJOR REQUIREMENTS (choose one four-course sequence)

ACCOUNTING (12 credit hours)

			credit hours
GBA	228	(Principles of Accounting II)	(3)
GBA	230	(Cost Accounting) **or**	(3)
MGMT	201	(Management Accounting I)	
GBA	340	(Intermediate Accounting I)	(3)
GBA	341	(Intermediate Accounting II)	(3)

MARKETING (12 credit hours)

GBM	380	(Selling: Principles and Practices)	(3)
GBM	381	(Principles of Advertising)	(3)
GBM	385	(Consumer Behavior)	(3)
GBM	388	(Principles of Retailing)	(3)

GENERAL BUSINESS (12 credit hours)

GBG	270	(Small Business and Entrepreneurial Ventures)	(3)
GBG	333	(Principles of Finance)	(3)
GBG	344	(Business Ethics)	(3)
OLS	252	(Human Behavior in Organizations)	(3)

INTERNATIONAL BUSINESS (15 credit hours)

GBI	330	(Foreign Trade Documentation and Procedures)	(3)
GBI	340	(International Marketing)	(3)
GBI	350	(International Finance and Banking)	(3)
GBI 370/ECON 466		(International Trade/Economics)	(3)
GBG	333	(Principles of Finance)	(3)

HEALTH OFFICE ADMINISTRATION (13 credit hours)

BIOL	213	(Human Anatomy and Physiology)	(4)
GBG	344	(Business Ethics)	(3)
GBH	200	(Medical Terminology)	(3)
GBH	303	(Principles of Health Insurance)	(3)

ELECTIVE REQUIREMENTS (12 credit hours)

The choice of electives is left to the student, in agreement with an academic advisor. The following guidelines should be followed:

- Business electives should be chosen based on interest and ability.
- Two of the elective courses (6 hours) must be taken in the humanities or the social sciences. The rest of these courses may be selected from any business course not required in the student's major or from courses in other disciplines.
- Developmental courses (GNC) are not acceptable as electives.

GENERAL PLAN OF STUDY FOR ACCOUNTING

FRESHMAN YEAR

First Semester

(3) GBG 127 (Introduction to Business)
(3) ENGL 101 (English Composition I)
(3) MA 153 (Algebra and Trigonometry I)
(3) GBA 227 (Principles of Accounting I) **or** MGMT 200 Introductory Accounting)
(3) Elective
(15)

Second Semester

(3) ECON 210 (Principles of Economics) **or** ECON 251 (Microeconomics) **or** ECON 252 (Macroeconomics)
(3) ENGL 102 (English Composition II) **or** GNT 220 (Technical Report Writing)
(3) STAT 213 (Probability and Decision Theory)
(3) GBA 228 (Principles of Accounting II)
(3) Elective
(15)

SOPHOMORE YEAR

First Semester

(3) CPT 107 (Computer Literacy)
(3) GBM 329 (Principles of Marketing)
(3) GBA 230 (Cost Accounting) **or** MGMT 201 (Management Accounting I)
(3) GBA 340 (Intermediate Accounting I)
(3) GBI 301 (Introduction to International Business)
(3) Elective
(18)

Second Semester

(3) GBG 260 (Business Law)
(3) OLS 274 (Applied Leadership)
(3) COM 114 (Fundamentals of Speech Communication)
(3) GBA 341 (Intermediate Accounting II)
(3) Elective
(15)

GENERAL PLAN OF STUDY FOR MARKETING

FRESHMAN YEAR

First Semester

(3) GBG 127 (Introduction to Business)
(3) ENGL 101 (English Composition I)
(3) MA 153 (Algebra and Trigonometry I)
(3) GBM 329 (Principles of Marketing)
(3) Elective
(15)

Second Semester

(3) COM 114 (Fundamentals of Speech Communication)
(3) ENGL 102 (English Composition II) **or** GNT 220 (Technical Report Writing)
(3) STAT 213 (Probability and Decision Theory)
(3) GBM 380 (Selling: Principles and Practices)
(3) Elective
(15)

SOPHOMORE YEAR

Third Semester

(3) CPT 107 (Computer Literacy)
(3) ECON 210 (Principles of Economics) **or** ECON 251 (Microeconomics) **or** ECON 252 ((Macroeconomics)
(3) GBA 227 (Principles of Accounting I) **or** MGMT 200 (Introductory Accounting)
(3) GBM 388 (Principles of Retailing)
(3) GBI 301 (Introduction to International Business)
(3) Elective
(18)

Fourth Semester

(3) GBG 260 (Business Law)
(3) OLS 274 (Applied Leadership)
(3) GBM 381 (Principles of Advertising)
(3) GBM 385 (Consumer Behavior)
(3) Elective
(15)

GENERAL PLAN OF STUDY FOR GENERAL BUSINESS

FRESHMAN YEAR

First Semester

(3) GBG 127 (Introduction to Business)
(3) ENGL 101 (English Composition I)
(3) MA 153 (Algebra and Trigonometry I)
(3) GBM 329 (Principles of Marketing)
(3) Elective
(15)

Second Semester

(3) ECON 210 (Principles of Economics) **or** ECON 251 (Microeconomics) **or** ECON 252 (Macroeconomics)
(3) ENGL 102 (English Composition II) **or** GNT 220 (Technical Report Writing)
(3) STAT 213 (Probability and Decision Theory)
(3) COM 114 (Fundamentals of Speech Communication)
(3) Elective
(15)

SOPHOMORE YEAR

Third Semester

(3) CPT 107 (Computer Literacy)
(3) OLS 274 (Applied Leadership)
(3) GBA 227 (Principles of Accounting I) **or** MGMT 200 (Introductory Accounting)
(3) GBG 344 (Business Ethics)
(3) GBI 301 (Introduction to International Business)
(3) Elective
(18)

Fourth Semester

(3) GBG 260 (Business Law)
(3) OLS 252 (Human Behavior in Organizations)
(3) GBG 270 (Small Business and Entrepreneurial Ventures)
(3) GBG 333 (Principles of Finance)
(3) Elective
(15)

GENERAL PLAN OF STUDY FOR INTERNATIONAL BUSINESS

FRESHMAN YEAR

First Semester	Second Semester
(3) GBG 127 (Introduction to Business)	(3) COM 114 (Fundamentals of) Speech Communication)
(3) ENGL 101 (English Composition I)	(3) ENGL 102 (English Composition II) **or** GNT 220 (Technical Report Writing)
(3) MA 153 (Algebra and Trigonometry I)	(3) STAT 213 (Probability and Decision Theory)
(3) GBM 329 (Principles of Marketing)	(3) ECON 210 (Principles of Economics) **or** ECON 252 (Macroeconomics)
(3) Elective	(3) Elective
(15)	(15)

SOPHOMORE YEAR

First Semester	Second Semester
(3) CPT 107 (Computer Literacy)	(3) GBG 260 (Business Law)
(3) GBI 301 (Introduction to International Business)	(3) OLS 274 (Applied Leadership)
(3) GBA 227 (Principles of Accounting I) **or** MGMT 200 (Introductory Accounting)	(3) GBI 340 (International Marketing)
(3) GBG 333 (Principles of Finance)	(3) GBI 350 (International Finance and Banking)
(3) GBI 330 (Foreign Trade Documentation and Procedures)	(3) GBI 370/ECON 466 (International Trade/Economics)
(3) Elective	(3) Elective
(18)	(18)

GENERAL PLAN OF STUDY FOR HEALTH OFFICE ADMINISTRATION

FRESHMAN YEAR

First Semester

(3) COM 114 (Fundamentals of) Speech Communication)
(3) ENGL 101 (English Composition I)
(3) GBG 127 (Introduction to Business)
(4) BIOL 213 (Human Anatomy and Physiology)
(3) Elective

(16)

Second Semester

(3) MA 153 (Algebra and Trigonometry I)
(3) ENGL 102 (English Composition II) **or** GNT 220 (Technical Report Writing)
(3) GBA 227 (Principles of Accounting I) **or** MGMT 200 (Introductory Accounting)
(3) GBM 329 (Principles of Marketing)
(3) Elective
(15)

SOPHOMORE YEAR

Third Semester

(3) CPT 107 (Computer Literacy)
(3) ECON 210 (Principles of) Economics)
(3) GBG 344 (Business Ethics)
(3) GBI 301 (Introduction to International Business)
(3) GBH 200 (Medical Technology)
(3) Elective
(18)

Fourth Semester

(3) GBG 260 (Business Law)
(3) GBH 303 (Principles of Health Insurance)
(3) OLS 274 (Applied Leadership)
(3) STAT 213 (Probability and Decision Theory)
(3) Elective

(15)

ASSOCIATE OF SCIENCE DEGREE IN MEDICAL LABORATORY TECHNOLOGY

This program is offered at the North Central campus in conjunction with the School of Health Sciences of Purdue University at West Lafayette. It prepares students for entry-level positions as medical laboratory technicians (MLTs) to meet the clinical medical testing needs of LaPorte, Porter, and Starke counties in north central and northwest Indiana.

This branch of health science is concerned with the performance of clinical tests that provide information to aid physicians in the diagnosis and treatment of disease and the maintenance of wellness. Medical laboratory technicians perform laboratory procedures that reveal normal and abnormal conditions in blood, other body fluids, and tissues of medical patients.

The MLT curriculum is structured so that a student will take the academic component (39 credit hours) at PU/NC[†], and the second year of clinical course work in the Lakeshore Medical Laboratory training program located in Michigan City.[††] Successful completion of the first year of study is **required** for admission to the second year of clinical studies, and provides a broadly based background in the sciences, mathematics, and the humanities. The clinical year consists of combined classroom and laboratory studies that provide experiences in clinical chemistry, hematology, microbiology, serology, histology, urinalysis, and other clinical areas. This training prepares the student to take the American Society of Clinical Pathologists Board of Registry Examination for certification as an MLT. In addition to passing this exam, as of 1997 all MLTs must have associate degrees in order to practice in the field.

Since the Lakeshore program limits its admission to 12 students per year, completion of the academic prerequisite courses at Purdue University North Central **does not guarantee admission** into the Lakeshore program. Acceptance is based on academic performance, interviews and other requirements of the clinical program. An overall GPA of 2.0 is minimal to be **considered** for acceptance into the Lakeshore program.

The curriculum consists of a total of 67 credit hours required for the associate degree in MLT. Students will complete 39 credit hours of course work at the North Central Campus, and, **if accepted into the training program**, will complete 28 credit hours of clinical course work. If successfully completed, these credits will be transferred to Purdue University North Central for completion of the degree requirements.

[†] The academic component must be completed within two years (including summers) To graduate you must complete at least 32 credit hours at Purdue University (non-transfer credits).

[††] Clinical coursework can not be taken on a part-time basis (must be completed in **one** year).

DIRECT CREDIT FOR PREVIOUS CLINICAL EXPERIENCE

For certified (registered) MLTs applying to PU/NC for this associate degree program, direct credit for previous clinical experience may be granted following very specific criteria. Those interested in this option should contact the Biology/Chemistry Section

UPGRADING MLT CERTIFICATION TO THAT OF MEDICAL TECHNOLOGIST

Individuals interested in upgrading their professional status from certified medical laboratory technician (MLT) to that of a certified medical technologist (MT) can pursue this option through completion of the bachelor's degree in biological sciences offered at Purdue University North Central. For more information contact the Biology/Chemistry Section.

ACADEMIC COMPONENT (39 credits) †

(To be taken at Purdue University North Central)

			credit hours
ENGLISH (6 credits)			
ENGL	101	(English Composition I)	(3)
ENGL	102	(English Composition II)	(3)
BIOLOGY (8 credits) ††			
BIOL	213	(Human Anatomy and Physiology)	(4)
BIOL	214	(Human Anatomy and Physiology)	(4)
CHEMISTRY (6 credits) †††			
CHM	111	(General Chemistry)	(3)
CHM	112	(General Chemistry)	(3)

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† The academic component must be completed within two years (including summers)

†† BIOL 203/204 (6 credits) can be substituted for BIOL 213/214 (8 credits); the two credit hours lacking with BIOL 203/204 must be made up with another course.

††† Students interested in the B.S. degree in biological sciences at PU/NC, or who have strong backgrounds in chemistry and math should take CHM 115/116 (8 credits) and MA 223/224 (6 credits).

MATHEMATICS (6 credits)			**credit hours**
MA	153	(Algebra and Trigonometry I)	(3)
MA	154	(Algebra and Trigonometry II)	(3)
COMPUTER LITERACY (3 credits)			
CPT	107	(Computer Literacy)	(3)
MICROBIOLOGY (4 credits) †			
BIOL	221	(Introduction to Microbiology)	(4)
SOCIAL SCIENCES/HUMANITIES ††			(6)
CLINICAL COMPONENT (28 credits) †† **(Lakeshore Medical Laboratory Training Program)**			
HSCI	252	(Clinical Chemistry)	(6)
HSCI	253	(Clinical Hematology)	(6)
HSCI	254	(Clinical Immunohematology)	(6)
HSCI	255	(Clinical Microbiology)	(3)
HSCI	257	(Clinical Parasitology)	(3)
HSCI	258	(Clinical Serology)	(1)
HSCI	260	(Clinical Urinalysis)	(1)
HSCI	290	(Special topics)	(2)

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† Students interested in the B.S. in Biology degree should take BIOL 322/323 (Microbiology and Microbiology Lab; 5 cr.)

†† The first year of study at PU/NC is **required** for admission to the clinical year. Completion of the academic prerequisite courses (1st year) at PU/NC **does not guarantee** admission into the Lakeshore program. For a practicing Board-certified MLT applying to PU/NC for this associate degree program, direct credit for previous clinical experience may be granted following very specific criteria. Those interested in this option should contact the Biology/Chemistry Section. The clinical program must be completed in one year.

ASSOCIATE OF SCIENCE DEGREE IN NURSING

The associate degree nursing program prepares men and women for careers in nursing and is offered in conjunction with the School of Nursing of Purdue University at West Lafayette. Upon successful completion of the program, an Associate of Science degree is granted. Graduates must have a minimum grade point average of 2.0 on a 4.0 scale to take the State Board Examination to earn licensure as registered nurses in Indiana. Indiana statutes mandate some restrictions on eligibility for licensure as a registered nurse. These restrictions primarily regard actions to protect the public from harm by individuals who may have a background of criminal, disciplinary, or substance abusive activities. Further information regarding these restrictions may be obtained from the Nursing Section office.

PHILOSOPHY

The Faculty of the Nursing Section articulate a philosophy for the Associate Degree Nursing Program congruent with the mission statement of Purdue University North Central that defines their beliefs regarding the concepts of person, society, health, nursing practice, and the educational process as follows: Society is an open system composed of numerous subsystems. Persons interact in social systems and subsystems to meet individual needs and to adapt to their internal and external environment. Through these interactions, the individual influences and is influenced by society. Each person is unique, with basic human needs who responds to his or her environment as a unified whole. The human needs of each individual are defined in terms of developmental processes through the life span that are met based upon each person's ability to adapt to that person's internal and external environment. Each person, as a rational, sentient being, has the right to participate in decisions which affect that person's health.

This unifying concept of health incorporates the human needs, developmental processes, and the adaptive capacity of the individual. Health reflects the greater capacity for adaptation and constitutes a state of optimal functioning on the continuum of health-illness.

The practice discipline of nursing, characterized by a commitment to the value of caring, assists individuals, families, communities and society in the promotion of optimal health. The nursing process is central to the concept of nursing practice and has as its inherent goal maintenance and fulfillment of the human needs of persons as holistic beings.

Encompassed within the total scope of nursing practice, the associate degree nurse provides an integral service by assuming personal responsibility and accountability in the practice role components of provider of client care, manager of client care, and member within the discipline of nursing. The graduate is prepared to give direct care to individuals in a variety of settings where policies and procedures are specified and supportive guidance is available. This graduate functions in concert with a multidisciplinary health care team that is prepared to diverse levels of expertise. Through the utilization of the nursing process and the performance of actions that may be of a dependent, independent, or collaborative nature, the associate degree nurse is accountable for providing quality nursing care. Associate degree nursing practice is guided by the profession's ethical and legal standards.

The educational process is a conjoint effort of faculty and students that fosters continued self-directed learning, critical thinking skills, and personal and professional growth. Nursing education is a systematic process of interactions that occur between faculty and students, students and students, faculty and faculty with the intent that learning takes place. Knowledge is drawn from the natural, physical and social sciences, and nursing to form the foundation of nursing practice.

The active process of learning occurs in three domains: cognitive, affective, and psychomotor. Some aspects of learning can be inferred from changes in behavior that occur as the result of educational experiences, while other aspects of learning may not be quantifiable or apparent. Learning is facilitated by active participation in the teaching-learning process, encouragement of creativity, fostering of critical thinking skills, reinforcement of desired behaviors, recognition of diversity found among individuals, respect for individual worth, and use of a multisensory approach in teaching strategy. The progression of learning proceeds directionally from simple to complex concepts and relationships and from functional to dysfunctional systems.

ADMISSION CRITERIA FOR NURSING PROGRAM

Enrollment in the Purdue University North Central nursing program is limited and not all qualified applicants may be offered admission. The applicant selection process utilized is based on objective criteria of applicant qualifications that serve to select the best candidates for admission from the pool of qualified individuals.

HEALTH EXAMINATION

An initial physical examination and annual laboratory tests are required of all students enrolled in the nursing program to meet the contractual agreements of Purdue University North Central with the affiliating agencies utilized for clinical experiences throughout the program. The required physical examination form must be completed and received in the Nursing Section office by July 1 for Fall Semester admissions and by November 1 for Spring Semester admissions. Results of required annual laboratory tests must be received in the Nursing Office by the specified date for student participation in clinical laboratory assignments.

CPR CERTIFICATION

Certification to perform cardiopulmonary resuscitation (CPR) is required of all students enrolled in the nursing program. The level "C" course for health professionals is necessary to meet the certification requirement. CPR certification must be renewed annually. A copy of the current CPR certification card is to be received in the Nursing Section office by July 1 for Fall Semester admissions and by November 1 for Spring Semester admissions.

LIABILITY INSURANCE

Students are required to participate in the University-wide nursing student liability insurance program. Liability insurance coverage is obtained through the University and fee payment is made with the Bursar's Office on the North Central campus. Fee statements are issued annually during the student's enrollment in the nursing program. Payment of fees must be received by the date indicated on the fee statement.

TRANSFER STUDENTS

Students transferring from another college or university must comply with the following admissions procedures:

1. Submit an application for admission and an official high school transcript. High school transcripts are required of all students who do not hold a bachelor's degree.
2. Forward official transcripts of work done in institutions previously attended (both high school and college). A separate transcript must be sent directly from each institution, regardless of whether credit is requested.
3. A student transferring from another college, university, or Purdue campus may be admitted to the nursing program based on past academic performance and other relevant data. Criteria will be applied in a manner consistent with Nursing Section policies in effect at the time the application is submitted.
4. Transfer applications from students who have completed a nursing course or courses at another institution will be considered on an individual basis. Qualified students will be admitted as space is available in the required nursing course(s). For further information, contact the Nursing Section chairperson.

To be eligible for consideration, students must meet the academic and subject-matter requirements and be in good academic and disciplinary standing at the college(s) previously attended.

CLINICAL LABORATORY

Clinical experiences are assigned in various health agencies in LaPorte, Porter, Lake and the surrounding counties. Attempts are made to provide students with experiences in agencies that differ in size and client population to broaden student learning. Students must provide their own transportation to assigned agencies.

TRANSFER (OR ADVANCED) CREDIT

Credit for non-nursing courses at Purdue University will be given for work of equivalent character and amount successfully completed at another accredited college. Advance standing will be determined on the basis of these credits. Advanced credit will be regarded as provisional and may be withdrawn by the Office of Admissions upon recommendation of the department concerned if dependent work is not satisfactorily completed.

When credit earned at another college or university is transferred to Purdue and accepted toward advanced standing, the credit is converted into terms of Purdue courses and applied to the program of study. It does not follow that the student's classification in the University or the time necessary for completion of the required work for a degree will be in line with that which was expected at the previous institution. Grades are not transferred; only credit in the course is recorded.

Credit will not be granted for nursing or science courses taken more than five years ago or for general studies courses taken more than 10 years ago.

LPN CREDIT BY EXAMINATION (ADVANCED PLACEMENT)

A credit by examination advanced placement option is offered to Licensed Practical Nurses (LPN's) qualified to enter the Purdue University North Central associate degree nursing program. The National League for Nursing (NLN) LPN Mobility Tests, parts I and II, are utilized to establish credit by examination. Successful performance on both tests establishes credit for a maximum of 12 credit hours of nursing course work. A fee is charged by the NLN for administration of each test. For further information, contact the Nursing Section chairperson.

GENERAL PLAN OF STUDY

First Semester				**Second Semester**			
Course	Cr.	Cl.	Lab.	Course	Cr.	Cl.	Lab.
BIOL 213 (Human Anatomy & Physiology)	4	3	2	BIOL 214 (Human Anatomy & Physiology)	4	3	2
CHM 119 (General Chemistry)	3	2	3	BIOL 221 (Introduction to Microbiology)	4	3	2
PCTX 201 (Introductory Pharmacology)	3	3	0	NUR 208 (Lifespan Human Development)	2	2	0
NUR 118 (Perspectives in Nursing)	1	1	0	NUR 230 (Personal Expression in Nursing)	1	1	0
NUR 119 (Nursing Assessment)	2	1	3	NUR 231 (Nurs. Care of Developing Families)	3	2	3
NUR 123 (Nursing Foundations)	4	2	6	ENGL 101 (English Composition I)	3	3	0
Total Credit Hours	17			Total Credit Hours	17		

Third Semester

Course	Cr.	Cl.	Lab.
NUR 214 (Introduction to Pathophysiology)	3	3	0
NUR 232 (Nursing Care of Infants, Children, and Adolescents)	3	2	3
NUR 233 (Nursing Care of Adults)	4	2	6
NUR 235 (Nursing Issues)	1	1	0
SOC 100 (Introductory Sociology)	3	3	0
PSY 120 (Elementary Psychology)	3	3	0
Total Credit Hours	17		

Fourth Semester

Course	Cr.	Cl.	Lab.
NUR 234 (Psychosocial Nursing Care of Family Members)	4	2	6
NUR 236 (Transition to Nursing Practice)	1	1	0
NUR 237 (Nursing Synthesis)	6	2	12
F&N 303 (Essentials of Nutrition)	3	3	0
Elective	3	3	0
Total Credit Hours	17		

Total Program Credit Hours	68
General Education Credit Hours	33
Nursing Education Credit Hours	35

ADDITIONAL INFORMATION

All the curricular requirements of the Purdue University North Central associate degree nursing program must be completed within six regular (Fall & Spring) semesters after beginning the nursing (NUR) sequence.

Credit for courses in nursing and science will be considered valid to meet the degree requirements for five years. Credit for other general education requirements will be considered valid for ten years.

Three NUR courses, NUR 118, NUR 119, and NUR 123, and a pharmacology course, PCTX 201, are required to be completed prior to progression to any other NUR clinical courses. Two NUR courses, NUR 236 and NUR 237, are required to be taken in the last or terminal semester of the nursing program. All other courses may be taken in any combination or sequence if the prerequisites or corequisite requirements for the individual courses are met. All course work required for the degree must be completed by the end of the semester in which NUR 236 and NUR 237 are taken.

A student must be enrolled in a clinical nursing course each semester in order to progress and remain in the nursing program. If progression is not maintained, the student will be required to complete an application for reinstatement into the nursing program.

In addition to the University scholastic requirements, the nursing program requires that any student earning a grade lower than a C in a nursing, science, or pharmacology course must repeat that course satisfactorily before progression may occur. A minimum grade point average (GPA) of 2.0 on a 4.0 scale is required for graduation.

Failure in any required clinical nursing course in the associate degree nursing curriculum will result in the student being dropped from the nursing program. The student may submit an application for reinstatement into the nursing program. Each case will be evaluated by the nursing faculty on the basis of academic record and other relevant data.

Basic skills in mathematics and proficiency in drug dosage calculations are required throughout the nursing program.

CONTINUATION FOR BACHELOR'S DEGREE IN NURSING

Purdue University North Central and Valparaiso University have joined in a cooperative public/private partnership wherein registered nurses who have an Associate of Science in Nursing degree from Purdue University North Central are eligible to work toward a Bachelor of Science in Nursing degree from Valparaiso University while paying the fees normally charged by Purdue University North Central. The cost difference in fees is subsidized by the State of Indiana. Students interested in the program may contact the Valparaiso University Office of Admissions.

The Bachelor of Science degree in nursing is also available at the West Lafayette, Calumet and Fort Wayne campuses of Purdue University.

The faculty reserves the right to update and otherwise revise the curriculum of the associate degree nursing program. Such information will be transmitted through notices and publications.

ASSOCIATE OF SCIENCE DEGREE IN FOOD SERVICE AND LODGING SUPERVISION

To prepare students for careers in the hospitality industry, the North Central campus offers an associate degree program in food service and lodging supervision. The program is designed to prepare individuals for middle management positions. Graduates assume responsibility for providing services in a multitude of situations where people eat or live away from home.

This program is offered in conjunction with the School of Consumer and Family Sciences of Purdue University at West Lafayette. Graduates who wish to complete a baccalaureate degree can enroll in the liberal studies or organizational leadership and supervision programs at Purdue University North Central or can transfer to the West Lafayette or the Calumet campus and enroll in any one of several four-year options in the Department of Restaurant, Hotel, Institutional and Tourism Management.

GENERAL PLAN OF STUDY

First Semester

(3) ENGL 101 (English Composition I)
(3) MA 153 (Algebra and Trigonometry I)
(3) F&N 203 (Foods: Their Selection and Preparation)
(2) RHIT 100 (Introduction to Food Service and Lodging Industry)
(3) PSY 120 (Elementary Psychology)
(3) SOC 100 (Introductory Sociology)

(17)

Second Semester

(3) ENGL 102 (English Composition II) **or** ENGL 420 (Business Writing)
(3) COM 114 (Fundamentals of Speech Communication)
(3) MGMT 200 (Introductory Accounting)
(3) F&N 303 (Essentials of Nutrition)
(3) RHIT 191 (Food Service Sanitation)
(3) RHIT 291 (Quality Food Production)
(2) RHIT 291L (Quality Food Production Laboratory)

(20)

Third Semester

(3) RHIT 322 (Restaurant, Hotel, Institutional and Tourism Hospitality: Facilities Management)
(3) RHIT 312 (Human Resource Management for Restaurants, Hotels, and Institutions)
(3) RHIT 311 (Purchasing for Restaurants, Hotels, and Institutions)
(3) CPT 107 (Computer Literacy)
(3) RHIT 181 (Lodging Management)
(3) ECON 210 (Principles of Economics)

(18)

Fourth Semester

(3) RHIT 391 (Specialty Food Service/Catering)
(3) RHIT 212 (Restaurant, Hotel, and Institutional Organization and Management)
(3) RHIT 341 (Cost Controls in Food Service and Lodging)
(1) RHIT 301 (Practicum in Restaurant, Hotel, and Institutional Management)
(3) Elective in RHIT/MGMT/SPV

(13)

ASSOCIATE OF SCIENCE DEGREE IN TECHNOLOGY

Science and technology encompass a range from extremely basic to highly complex and abstract activities, including individuals with a range of educational backgrounds and training. To prepare students to enter the technical fields, Purdue University's School of Technology offers a number of two-year undergraduate programs leading to the degree of Associate of Science. Many of these programs are available at Purdue University North Central. The Associate of Science in Technology degree is awarded to students who satisfactorily complete the program of study in one of the curricula described in the following pages. Those who have completed the requirements for the associate degree in one of the available curricula may be admitted to an additional two-year program in organizational leadership and supervision at the North Central campus leading to the Bachelor of Science degree. Alternatively, the associate degree holder may be admitted to a junior/senior year curriculum at another Purdue campus leading to the bachelor's degree in the same field as the associate degree.

News reports in the press, radio, and television frequently group scientists, engineers, technologists, and technicians together without distinguishing individual work functions. Although they are members of the same team, their functions are different. The scientist is a theoretician, interested in ideas and concepts; the engineer is a designer and innovator of new products, processes, procedures, or systems and uses knowledge of mathematics and science to arrive at practical, economically feasible solutions to problems. The engineering technologist is typically a practical person, interested in applying engineering principles as well as organizing people for industrial production, construction or operation, or in the improvement of devices, processes, methods, or procedures. The engineering technologist is normally a graduate of a four-year engineering technology bachelor's degree program.

The engineering technician, usually a graduate of a two-year engineering technology associate degree program, does one or more of the following: carries out the standard calculations form, estimates the cost of, or prepares service manuals for, equipment; installs, checks or tests, maintains, repairs, modifies, and improves equipment; sells or operates equipment and/or facilities. The engineering technician is an important, practical person with a sound understanding of scientific principles of testing and measuring devices and of practical techniques. Projections indicate that there are very favorable occupational opportunities in the future for technicians and technologists.

The engineering technologist and the engineering technician do interesting and enjoyable work in many areas of manufacturing, sales, technical writing, field service, quality control, and similar engineering support activities.

Students receive a solid technical foundation which will enable them to adapt readily to a wide variety of employment opportunities. The success of our graduates in industry has emphasized the need to continue with this philosophy.

ASSOCIATE OF SCIENCE DEGREE IN ARCHITECTURAL TECHNOLOGY

This program prepares students for employment with architects, contractors, building materials suppliers, and various governmental agencies. Graduates accept positions as architectural draftsmen, estimators, planning technicians, field inspectors, and sales representatives. It is offered at the North Central Campus in conjunction with the School of Technology of Purdue University at West Lafayette.

The drafting courses begin with basic fundamentals and extend into wood frame systems and intermediate-size buildings. Other drawing courses include presentation techniques. Materials, surveying, specifications, estimating, mechanical equipment and other courses related to construction are also a part of the program. Related courses in the areas of mathematics, physical sciences, and humanities are essential in the development of a person who wishes to advance in the field of construction.

Students contemplating future transfer to an accredited architectural school should contact their advisors.

Graduates of this program may continue their education toward the Bachelor of Science degree in supervision (construction emphasis) at this campus or toward the Bachelor of Science degree in Building Construction Managment at West Lafayette or Construction Technology at Purdue-Calumet.

Note: This curriculum is not designed to educate registered architects.

GENERAL PLAN OF STUDY

FRESHMAN YEAR

First Semester	Second Semester
(3) ART 299P (Plans and Specifications)	(3) ART 150 (Architectural Construction I)
(2) BCM 100 (Introduction to Construction)	(3) BCM 235 (Construction Materials and Systems)
(3) CPT 107 (Computer Literacy)	(3) MET 111 (Applied Statics)
(3) ENGL 101 (English Composition I)	(3) COM 114 (Fundamentals of Speech Communication)
(3) MA 153 (Algebra and Trigonometry I)	(3) MA 154 (Algebra and Trigonometry II)
(3) TG 110 (Technical Graphics Communications)	(3) TG 200 (Survey of Computer-Aided Drafting and Design)
(17)	(18)

SOPHOMORE YEAR

Third Semester	Fourth Semester
(3) BCM 230 (Mechanical and Electrical Systems)	(2) ART 221 (Architectural Presentation)
(3) BCM 270 (Materials and Estimates)	(3) ART 222 (Architectural Construction II)
(3) BCM 112 (Construction Surveying Fundamentals)	(3) BCM 345 (Scheduling)
(4) MET 211 (Applied Strength of Materials)	(3) BCM 212 (Construction Layout)
(3) ECON 210 (Principles of Economics)	(3) BCM 380 (Concrete Construction)
(3) GNT 220 (Technical Report Writing)	(4) PHYS 218 (General Physics I) **or** PHYS 220 (General Physics I)
(19)	(18)

ASSOCIATE OF SCIENCE DEGREE IN BUILDING CONSTRUCTION MANAGEMENT

This program prepares students to become professional contractors-managers of the construction process. The program emphasizes the management of the people, money, machines, and materials with which structures are built. It stresses production rather than design, and management skills rather than craft skills.

Graduates are prepared to work for all types of contractors: residential, commercial, industrial, highway, heavy, mechanical, electrical and specialty. Graduates are also prepared for work in both the field and the office. Experienced graduates fill positions such as job superintendent, estimator, scheduler, cost analyst, project manager and company executive.

Emphasis of this program is placed on the development of the job skills needed by contractors, including plan reading, estimating, surveying, drafting and accounting. Graduates of this program may continue their education toward the Bachelor of Science degree in supervision (construction emphasis) at this campus or toward the Bachelor of Science degree in Building Construction Management at West Lafayette or Construction Technology at Purdue-Calumet.

Note: *This curriculum prepares students as professional constructors, but not for registration as professional architects or engineers.*

GENERAL PLAN OF STUDY

FRESHMAN YEAR

First Semester

(3) ART 299P (Plans and Specifications)
(2) BCM 100 (Introduction to Construction)
(3) CPT 107 (Computer Literacy)
(3) ENGL 101 (English Composition I)
(3) MA 153 (Algebra and Trigonometry I)
(3) TG 110 (Technical Graphics Communications)
(17)

Second Semester

(3) ART 150 (Architectural Construction I)
(3) MET 111 (Applied Statics)
(3) COM 114 (Fundamentals of Speech Communication)
(3) BCM 235 (Construction Materials and Systems)
(3) MA 154 (Algebra and Trigonometry II
(3) TG 200 (Survey of Computer-Aided Drafting and Design)
(18)

SOPHOMORE YEAR

Third Semester

(3) BCM 230 (Mechanical and Electrical Systems)
(3) BCM 270 (Materials and Estimates)
(3) BCM 112 (Construction Surveying Fundamentals)
(4) MET 211 (Applied Strength of Materials)
(3) GNT 220 (Technical Report Writing)
(3) MA 223 (Introductory Analysis I)
(19)

Fourth Semester

(3) ECON 210 (Principles of Economics)
(3) BCM 345 (Scheduling)
(3) BCM 212 (Construction Layout)
(3) BCM 380 (Concrete Construction)
(3) MGMT 200 (Introductory Accounting)
(4) PHYS 218 (General Physics I) **or** PHYS 220 (General Physics I)
(19)

ASSOCIATE OF SCIENCE DEGREE IN CIVIL ENGINEERING TECHNOLOGY

This program is designed to prepare students for employment with land surveyors, highway departments, contractors, city engineering offices and engineering consultants, as well as with other specializations of civil engineering. Graduates accept positions as topographers, structural draftsmen, steel and concrete laboratory technicians, or as instrument operators doing land and highway surveys. With additional experience they may acquire positions as supervisors, or chiefs of parties in a variety of work associated with civil engineering.

The surveying courses begin with basic operation and use of equipment and progress through route surveying, land surveying and subdivision. Other groups of courses consider structural systems, materials, strength of materials, and specifications and estimating. To broaden the technician's ability to communicate in words and figures, courses in mathematics, physical science and communicative skills are required.

This program is offered at the North Central campus in conjunction with the School of Technology of Purdue University at West Lafayette. Graduates may continue their education toward the Bachelor of Science degree in supervision (construction emphasis) at this campus or toward the Bachelor of Science degree in Building Construction Managment at West Lafayette or Construction Technology at Purdue-Calumet.

NOTE: The curriculum is not designed to educate professional engineers or registered land surveyors.

GENERAL PLAN OF STUDY

FRESHMAN YEAR

First Semester

(3) ART 299P (Plans and Specifications)
(2) BCM 100 (Introduction to Construction)
(3) CPT 107 (Computer Literacy)
(3) ENGL 101 (English Composition I)
(3) MA 153 (Algebra and Trigonometry I)
(3) TG 110 (Technical Graphics Communications)
(17)

Second Semester

(3) ART 150 (Architectural Construction I)
(3) BCM 235 (Construction Materials and Systems)
(3) MET 111 (Applied Statics)
(3) COM 114 (Fundamentals of Speech Communication)
(3) MA 154 (Algebra and Trigonometry II)
(3) TG 200 (Survey of Computer-Aided Drafting and Design)
(18)

SOPHOMORE YEAR

Third Semester

(3) BCM 270 (Materials and Estimates)
(3) BCM 112 (Construction Surveying Fundamentals)
(4) MET 211 (Applied Strength of Materials)
(3) GNT 220 (Technical Report Writing)
(3) ECON 210 (Principles of Economics)
(3) MA 223 (Introductory Analysis I)
(19)

Fourth Semester

(3) BCM 212 (Construction Layout)
(3) CET 209 (Land Surveying and Subdivision)
(3) CET 253 (Hydraulics and Drainage)
(3) BCM 380 (Concrete Construction)
(3) MA 224 (Introductory Analysis II)
(4) PHYS 218 (General Physics I) **or** PHYS 220 (General Physics I)
(19)

ASSOCIATE OF SCIENCE DEGREE IN COMPUTER TECHNOLOGY (PROGRAMMING)

The computer technology program at the North Central campus is offered in conjunction with the School of Technology of Purdue University at West Lafayette. It prepares students for professional careers in business data processing and computer information systems. The curriculum is designed to prepare graduates who can:

- Create systems of computer programs and/or personal computer applications to help solve business problems;
- Understand basic business functions and have the ability to conceptualize solutions to business problems;
- Recognize the importance of information delivery systems support to a business enterprise;
- Understand computer hardware and software systems organization and operations;
- Communicate effectively, both orally and in writing, in technical and non-technical situations.

A curriculum that fulfills these objectives must provide both technical and supportive education. Technical courses in computer technology train the student in the skills required to apply the potential of computers to business applications. Supportive courses educate the student in the functional aspects of business to which the technical computing skills will be applied. At the end of this program, the student has the option of joining the work force or continuing for a B.S. degree. There are several bachelor's degree options.

Associate degree graduates may continue toward a bachelor's degree in Organizational Leadership and Supervision at Purdue University North Central. Students in this program may choose a computer technology emphasis.

The student wishing a bachelor's degree in Computer Technology may also transfer to Purdue's West Lafayette campus or to the Calumet campus. Both locations offer bachelor's degrees in information systems and computer programming. West Lafayette also offers a bachelor's degree in Computer Technology with a telecommunications option.

Graduates are prepared for employment in a wide variety of business, industrial, and consulting environments. Representative entry-level positions include applications programmer, programmer/analyst, personal computing specialist, and marketing representative. Experienced graduates can expect to fill positions in systems analysis, project management, database administration, computer operations management, data processing management, and possibly non-computing management of executive-line positions.

GENERAL PLAN OF STUDY

FRESHMAN YEAR

First Semester	Second Semester
(3) CPT 135 (Personal Computing Technology and Applications)	(3) CPT 172 (Database Application Development)
(3) CPT 145 (Introduction to Information Systems)	(3) CPT 176 (Information Technology and Architecture)
(3) MA 153 (Algebra and Trigonometry I)	(3) MA 154 (Algebra and Trigonometry II)
(3) ENGL 101 (English Composition I)	(3) ENGL 102 (English Composition II)
(3) IET 104 (Industrial Organization)	(3) OLS 252 (Human Behavior in Organizations)
(15)	(15)

SOPHOMORE YEAR

Third Semester	Fourth Semester
(3) CPT 230 (Data Communications)	(3) CPT 255 (Programming with Data Structures)
(3) CPT 250 (Programming with Object Structures)	(3) CPT 280 (Systems Analysis and Design Methods)
(3) COM 114 (Fundamentals of Speech Communication)	(3) Accounting / EET Selective *
(3) Economics/EET Selective *	(3) Statistics / Physics Selective *
(3) Free Elective**	(3) Computing Selective
	(3) Interpersonal Communications Selective
(15)	(18)

Due to prerequisites, CPT courses MUST be taken in the appropriate sequence. Courses such as OLS 252, IET 104, and COM 114 may be taken in semesters other than those indicated.

Students will NOT receive credit for: CPT 107, CPT 175E, CPT 188S, CPT 188W, CPT 188D.

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* Elective and selective courses are listed on the following page.

** Students wishing to pursue a B.S. degree in Computer Technology should take MA 223 as their free elective. Those wishing to pursue a B.S. degree with the telecommunications option should also take EET 214, EET 233 and PHYS 218.

ELECTIVE AND SELECTIVE COURSES

COMPUTING SELECTIVE (Any CPT course at or above the 200 level, excluding work experience credit and cooperative education.

			credit hours
CPT	267	(Introduction to C++ Programming for Technical or Business Applications)	(3)
CPT	285	(Topics in Programming Languages)	(3)
CPT	388	(Topics in Programming Languages)	(3)

INTERPERSONAL COMMUNICATIONS SELECTIVES (to develop oral communications skills through actual speaking experience.)

COM	210	(Debating Public Issues)*	(3)
COM	314	(Advanced Public Speaking)*	(3)
COM	315	(Speech Communication of Technical Information)	(3)
COM	415	(Discussion of Technical Problems)	(3)
COM	491	(Special Topics in Communication)	(3)
OLS	474	(Conference Leadership)	(3)

ECONOMICS/EET SELECTIVE

ECON	210	(Principles of Economics)	(3)
EET	214	(Electricity Fundamentals)⁺	(3)

ACCOUNTING/EET SELECTIVE

MGMT	200	(Introduction to Accounting)	(3)
EET	233	(Electronics and Industrial Controls)*	(3)

STATISTICS/PHYSICS SELECTIVES

STAT	301	(Elementary Statistical Methods), 433, 501, 511	(3)
PHYS	218	(General Physics I) **or** PHYS 220 (General Physics I)	(3)

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* Not presently offered at the North Central Campus.

⁺Normally offered only in the 2nd semester on alternating (even) years.

ASSOCIATE OF SCIENCE DEGREE IN ELECTRICAL ENGINEERING TECHNOLOGY

Accredited by the Technology Accreditation Commission (TAC) of the Accreditation Board for Engineering and Technology (ABET), 111 Market Place, Suite 1050, Baltimore, MD 21202, Telephone: 410-347-7700.

The electrical engineering technology (EET) program is a combination of courses in electricity, electronics, mathematics, science, and general academic areas that leads to the A.S. degree. The program is designed to prepare students for employment as technicians in research laboratories, electronic industries, and in any industry that uses electrical power or electronic controls.

The curriculum provides the student with sufficient education to find employment in the fields of communications electronics, industrial electronics, military electronics, computer electronics, automation, industrial controls, electronic servicing, electrical power, aviation electronics, and others. A considerable amount of laboratory work is required.

Graduates with the A.S. degree may continue their education toward the B.S. degree in electrical engineering technology at the West Lafayette, Calumet, Fort Wayne or Indianapolis campuses. A grade point average of 2.2 or higher in EET and mathematics courses is required for entry into the bachelor's degree program at West Lafayette. Each student is responsible for scheduling the necessary prerequisites and courses to meet the requirements for graduation.

Graduates may also work toward the B.S. degree at the Purdue University North Central Campus. The bachelor's degree in organizational leadership and supervision with an electrical engineering technology emphasis is available. A description of the program can be found in the baccalaureate degree section of this catalog. An appropriate plan of study can be obtained from one of the School of Technology advisors.

GENERAL PLAN OF STUDY

FRESHMAN

First Semester

(4) EET 107 (Introduction to Circuit Analysis)
(3) EET 109 (Digital Fundamentals)
(2) EET 196 (Exploring EET)
(3) CPT 175E (Visual Programming)
(3) MA 153 (Algebra & Trigonometry I)
(3) ENGL 101 (English Composition I)
___
(18)

Second Semester

(4) EET 157 (Electronic Circuit Analysis)
(4) EET 159 (Digital Applications)
(3) MA 154 (Algebra & Trigonometry II)
(3) COM 114 (Fundamentals of Speech)
(1) GS 175 (Information Strategies)
___
(15)

SUMMER - SOPHOMORE

(4) EET 231 (Electrical Power and Controls)
(4)

SOPHOMORE

Third Semester	Fourth Semester
(4) EET 207 (AC Electronics Circuit Analysis)	(4) EET 257 (Power and RF Electronics)
(4) EET 209 (Introduction to Microcontrollers)	(4) EET Elective
(3) MA 223 (Introductory Analysis I)	(3) MA 224 (Introductory Analysis II)
(3) ENGR 195E ("C" or "C++" Language Programming for Engineering and Technical Applications)	(4) PHYS 218 (General Physics I) **or** PHYS 220 (General Physics I)
(3) TG 110 (Technical Graphics Communications)	(3) Humanities/Social Science Elective
(17)	(18)

EET ELECTIVES			**credit hours**
EET	302	(Introduction to Control Systems) pre- and corequisites: EET 157, 231, MA 223	(4)
EET	303	(Communications I) pre- and corequisites: EET 257, MA 224	(4)
EET	309	(Imbedded Controllers) prerequisite: EET 209	(4)
EET	317	(Digital Circuits and Subsystems) pre- and corequisites: EET 159, 257	(4)
EET	331	(Generation and Transmission of Electrical Power) prerequisite: EET 231	(4)

HUMANITIES ELECTIVES

Select from courses in Art, English, History, Foreign Language, Music or Philosophy. English courses must be 200 level or above. If you speak a language other than English, you may be able to test out of one or more semesters of that language, thereby receiving credit for your Humanities Elective.

SOCIAL SCIENCES ELECTIVES

Select from courses in Anthropology, Political Science, Psychology or Sociology. Economics is not accepted as a Humanities or Social Sciences elective.

ASSOCIATE OF SCIENCE DEGREE IN INDUSTRIAL ENGINEERING TECHNOLOGY

Accredited by the Technology Accreditation Commission (TAC) of the Accreditation Board for Engineering and Technology (ABET),111 Market Place, Suite 1050, Baltimore, MD 21202, Telephone: 410-347-7700.

This major field of specialization is designed to develop technicians to support the problem-solving and decision-making functions in management and to prepare for planning and control, work method analysis, work measurements, quality assurance and controls, and systems and procedures analysis. Practical applications of production-oriented operations, research techniques, data processing and computer programming fundamentals are stressed.

The industrial engineering technician often is initially employed in the industrial engineering, quality control, production control or plant layout department. With increased experience the student may advance within the department, directly assisting a professional industrial engineer, or may become a production supervisor. This broad technical background, together with the human relations background and a proficiency in engineering methods and mathematics, enables the industrial engineering technician to take advantage of opportunities for advancement in many directions.

Graduates may continue their education toward the Bachelor of Science degree in organizational leadership and supervision with an emphasis in industrial engineering technology applications at Purdue University North Central.

GENERAL PLAN OF STUDY

FRESHMAN YEAR

First Semester	Second Semester
(3) IET 104 (Industrial Organization)	(3) GNT 220 (Technical Report Writing)
(3) MA 153 (Algebra & Trigonometry I)	(3) MA 154 (Algebra & Trigonometry II)
(3) ENGL 101 (English Composition I)	(3) ECON 210 (Principles of Economics)
(3) TG 110 (Technical Graphics Communications)	(3) IET 250 (Fundamentals of Production Cost Analysis)
(3) COM 114 (Fundamentals of Speech Communication)	(3) IET Elective (IET 268, 312 or 202)
	(3) Computer Elective
(15)	(18)

SOPHOMORE YEAR

	Third Semester		Fourth Semester
(3)	TG 200 (Survey of Computer-Aided Drafting and Design)	(4)	PHYS 219 (General Physics II)
(4)	PHYS 218 (General Physics I)	(3)	IET 266 (Work Measurement & Incentives)
(3)	IET 262 (Motion Study and Work Methods)	(3)	IET 204 (Techniques of Maintaining Quality)
(3)	IET 224 (Production Planning & Control)	(3)	MET 141 (Materials I)
(3)	STAT 301 (Elementary Statistical Methods)	(3)	OLS 252 (Human Behavior in Organizations)
(2)	Technical Elective	(2)	IET 296 (Industrial Technology Case Problems)
(18)		(18)	

TECHNICAL ELECTIVES

COMPUTER

			credit hours
CPT	175E	(Visual Programming)	(3)
CS	140	(Introduction to Data Processing – Visual Basic)	(3)
ENGR	195E	("C" or "C++" Language Programming for Engineering and Technical Applications)	(3)

IET MODEL SIMULATION

IET	202	(Principles of Industrial Robotics)	(3)
IET	252	(Techniques for Indirect Labor Control)	(3)
IET	268	(Plant Layout)	(3)
IET	312	(Materials Handling)	(3)

MATERIAL HANDLING

IET	312	(Materials Handling)	(3)
IET	268	(Plant Layout)	(3)

QUALITY CONTROL

IET	364	(Total Quality Control)	(3)

ASSOCIATE OF SCIENCE DEGREE IN MECHANICAL ENGINEERING TECHNOLOGY

Accredited by the Technology Accreditation Commission (TAC) of the Accreditation Board for Engineering and Technology (ABET), 111 Market Place, Suite 1050, Baltimore, MD 21202, Telephone: 410-347-7700.

This program of study is designed to prepare students for employment in manufacturing and production industries. Emphasis is on the generation, transmission, and utilization of mechanical and fluid energy for the purpose of design and production of tools, machines, and their products. Graduates accept jobs in laboratories, engineering departments, plant maintenance, production departments, and technical sales. With experience, promotion to positions such as industrial supervisors, machine and tool designers, technical buyers, production expeditors, and cost estimators is possible. Graduates are eligible for certification as associate engineering technicians.

GENERAL PLAN OF STUDY

FRESHMAN YEAR

First Semester	Second Semester
(1) MET 162 (Computational Analysis Tools in MET)	(3) MET 111 (Applied Statics)
(3) MET 141 (Materials I)	(3) MET 142 (Manufacturing Processes I)
(3) TG 110 (Technical Graphics Communications)	(3) MA 154 (Alegbra & Trigonometry II)
(3) MA 153 (Algebra & Trigonometry I)	(2) MET 163 (Computer Application Tools in MET)
(3) ENGL 101 (English Composition I)	(3) COM 114 (Fundamentals of Speech Communication)
(3) Humanities or Social Science Elective	(3) TG 200 (Survey of Computer-Aided Drafting & Design)
(16)	(17)

SOPHOMORE YEAR

Third Semester	Fourth Semester
(4) MET 211 (Applied Strength of Materials)	(3) MET 214 (Machine Elements)
(3) MET 213 (Dynamics)	(3) MET 220 (Heat/Power)
(3) MET 230 (Fluid Power)	(4) PHYS 219 (General Physics II)
(3) MET 242 (Manufacturing Processes II)	(3) IET 104 (Industrial Organization)
(3) MA 223 (Introductory Analysis I)	(3) MET 102 (Production Design and Specifications)
(4) PHYS 218 (General Physics I)	
(20)	(16)

ELECTIVES (Mechanical Engineering Technology – Associate)

SOCIAL SCIENCE/HUMANITIES: English, History, Philosophy, Anthropology, Sociology, Psychology, Economics, Political Science. (Excluded: ROTC, Band, Education)

ASSOCIATE OF SCIENCE DEGREE IN ORGANIZATIONAL LEADERSHIP AND SUPERVISION

(Department of Organizational Leadership and Supervision)

This program is offered athe North Central campus in conjunction with the School of Technology of Purdue University at West Lafayette. It is designed to meet the needs of individuals who wish to improve their skills as supervisors or to expand their general education. Su- pervisors work in a variety of organizations and in many different functional areas. Therefore, the curriculum is designed to allow students to select courses within specified categories, which best prepare them for the functional area and/or organization of their choice. Graduates of the program are eligible to continue toward a Bachelor of Science degree in organizational leadership and supervision.

GENERAL PLAN OF STUDY

TECHNICAL CORE (18 credits)			credit hours
IET	104	(Industrial Organization)	(3)
OLS	274	(Applied Leadership)	(3)
MA	153	(Algebra & Trigonometry I)	(3)
OLS	252	(Human Behavior in Organizations)	(3)
OLS	331	(Occupational Safety and Health)	(3)
OLS	375	(Training Methods)	(3)

COMMUNICATIONS (6 credits)

ENGL	101	(English Composition I)	(3)
COM	114	(Fundamentals of Speech Communication)	(3)

FUNCTIONAL/TECHNICAL (30 credits)

Recognizing that supervisors work in various functional areas, each student will be expected to select one or more groups of courses that are designed to increase technical effectiveness on the job. Here are examples of existing functional areas from which 30 credit hours are to be selected:

OLS, Labor Relations, Human Resources, and IET.
Other areas include : EET, MET, GBA, GBG, GBH
GBM, CPT, TG, MA and STAT.

SUPPORTIVE (NON-TECHNICAL) (9 credits)

Each supervisor should have a balanced educational experience. Therefore, non-technical courses are included in the program. With the approval of the academic advisor, the student may select from a wide range of courses. Some of the more typical courses considered applicable are listed below.

Typical supportive (non-technical courses)			**credit hours**
SOC	100	(Introductory Sociology)	(3)
PSY	120	(Elementary Psychology)	(3)
GNT	220	(Technical Report Writing) **or** ENGL 420 (Business Writing)	(3)
COM	315	(Speech Communication of Technical Information) **or** COM 415 (Discussion of Technical Problems)	(3)

Total credits required for associate degree : (54)

GENERAL PLAN OF STUDY †

FRESHMAN YEAR

First Semester	**Second Semester**
(3) ENGL 101 (English Composition I)	(3) GNT 220 (Technical Report Writing) **or** ENGL 102 (English Composition II)
(3) MA 153 (Algebra and Trigonometry I)	(3) COM 114 (Fundamentals of Speech Communication)
(3) OLS 252 (Human Behavior in Organizations)	(3) OLS 274 (Applied Leadership)
(3) Technical Elective ††	(6) Technical Electives ††
(3) CPT Elective	(3) Non-technical Elective
(15)	(18)

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† Course requirements and sequencing may vary among individual students. Consult your advisor for guidance.

†† Courses selected as technical electives must be part of an integrated plan with two- and three-course sequences, and should contain material of a more advanced nature than that presented in a required, or previously taken elective course. Courses from the following areas are acceptable as approved by your academic advisor: supervision, Community College (GBA, GBH, GBM and GBG), engineering , management (ECON & MGMT), technology (IET, MET, EET, CPT, CET, ART, CIMT or BC).

SOPHOMORE YEAR

Third Semester

(3) ECON 210 (Principles of Economics
(3) MGMT 200 (Introductory Accounting) **or** GBA 227 (Principles of Accounting I)
(3) OLS 331 (Occupational Safety and Health)
(3) Technical Elective ††
(3) Non-technical Elective
(15)

Fourth Semester

(3) IET 104 (Industrial Organization)
(3) OLS 375 (Training Methods)
(6) Technical Electives ††
(3) Non-technical Elective
(15)

Human Resource Management and Development Option

This associate degree option offers a blend of professional and humanities courses leading to the broad-based education essential for today's human resource professional. The degree requires the equivalent of two semesters of full-time study beyond the certificate program.

The curriculum is designed to give students a deeper understanding of human beings – a quality vital for effectiveness in today's human resource field. Following the suggestions of human resource professionals, courses incorporate current developments in areas such as:

- Compensation and benefits
- Employee relations
- Staffing
- Federal regulations affecting the workplace
- Business management
- Human resource information systems
- Employee training and development
- Organizational development and restructuring

A strong humanities component includes courses in English composition and speech, psychology, American history, literature and foreign language.

The curriculum is planned to meet the needs of both full- and part-time students, with courses in both daytime and evening. It also is flexible enough to allow non-continuous progress should the student be unable to take classes every semester.

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†† See previous page.

GENERAL PLAN OF STUDY

CORE REQUIREMENTS (18 credits)

			credit hours
IET	104	(Industrial Organization)	(3)
MA	153	(Algebra and Trigonometry I)	(3)
OLS	252	(Human Behavior in Organizations)	(3)
OLS	274	(Applied Leadership)	(3)
OLS	331	(Occupational Safety and Health)	(3)
OLS	375	(Training Methods)	(3)

COMMUNICATIONS (6 credits)

COM	114	(Fundamentals of Speech Communication)	(3)
ENGL	101	(English Composition I)	(3)

FUNCTIONAL/TECHNICAL (15 credits)

OLS	240	(Labor Relations Problems)	(3)
OLS	372	(Staffing and Performance Appraisal)	(3)
OLS	376	(Human Resource Issues)	(3)
OLS	484	(Leadership Strategies for Quality and Productivity)	(3)

SUPPORTIVE - Non-Technical (12 credits)

HIST	151	(American History to 1877)	(3)
HIST	152	(United States Since 1877)	(3)
ENGL	350	(Survey of American Literature: From its Beginnings to 1865)	(3)
ENGL	351	(Survey of American Literature: From 1865 to the Post-World War II Period)	(3)

or two Foreign Language courses may be substituted for either the English or history sequence

SUPPORTIVE - Technical (15 credits)

CPT	107	(Computer Literacy)	(3)
PSY	120	(Elementary Psychology)	(3)
SOC	100	(Introductory Sociology)	(3)
ECON	210	(Principles of Economics)	(3)
MGMT	200	(Introductory Accounting) **or**	(3)
GBA	227	(Principles of Accounting I)	

Total credit hours required for associate degree: (63)

CERTIFICATE PROGRAMS

In addition to the Associate of Science degree programs, intensive and practical programs of shorter duration are available, leading to certificates attesting that the student has completed a prescribed course of study. These programs are designed primarily for the mature, part-time student and were developed through consultation with representatives from labor, industry, and the service areas.

All are practical programs of less than 40 semester hours of credit. Advancement can be varied to suit the needs of the individual student who may take one, two or three courses each semester. The average part-time student should be able to complete any one of the programs within three years.

Enrollment is on the basis of a program carefully tailored to meet individual student needs and vocational objectives through consultation with an academic advisor. Changes in the student's program arising out of new work assignments or changes in vocational objective may also be worked out with the academic advisor.

BUSINESS/PROFESSIONAL COMMUNICATIONS CERTIFICATE

This certificate provides an opportunity for students to participate in a practical program of study that focuses on strengthening written and oral occupational skills. It is offered at the North Central campus in conjunction with the School of Liberal Arts of Purdue University at West Lafayette. Accepted students will have the chance to expand their knowledge in a variety of business areas, including small group communication, interviewing, public speaking, and technical writing. In addition, the final project will allow participants to apply what they have learned via a supervised internship at an approved site.

The program is open to current students who have completed 30 or more credit hours in a degree program or individuals employed in a position deemed academically equivalent by the certificate coordinator. Credit for courses in the certificate program which have been earned in other degree programs will be accepted toward the certificate. Courses taken to fulfill the certificate requirements may be applied toward requirements for associate and bachelor's degrees.

The certificate requires a total of 27 credit hours, 12 of which many students will have taken in meeting other degree requirements.

Course requirements are on the following page.

COURSE REQUIREMENTS (15 credit hours)			**credit hours**
ENGL	101	(English Composition I)	(3)
ENGL	102	(English Composition II) **or** GNT 220 (Technical Report Writing)	(3)
COM	114	(Fundamentals of Speech Communication)	(3)
COM	204	(Communication and Social Knowledge)	(3)
CPT	107	(Computer Literacy)	(3)

ELECTIVE COURSES (choose 3)

ENGL	304	(Advanced Composition)
ENGL	420	(Business Writing)
COM	315	(Speech Communication of Technical Communication)
COM	318	(Principles of Persuasion)
COM	320	(Small Group Discussion)
COM	324	(Introduction to Organizational Communication)
COM	325	(Interviewing: Principles and Practices)
COM	415	(Discussion of Technical Problems)
COM	491	(Special Topics in Communication)
CPT	188S	(Microcomputer Spreadsheet Applications)

TERMINAL PROJECT/INTERNSHIP

COM	490	(Internship in Communication) A critical reflection and summary project based on the student's experience ina supervised internship at an approved site.

COMPUTER TECHNOLOGY CERTIFICATE

Purdue University North Central offers a certificate program in Computer Technology for persons who have earned either an associate or baccalaureate degree and who wish to develop expertise in computer programming and personal computing skills. It is offered at the North Central campus in conjunction with the School of Technology of Purdue University at West Lafayette. Degreed students who have established credit in a mathematics course equivalent to MA 154 and who have not received a degree in CPT, CIS, or CS may take advantage of this program.

The certificate program teaches the practical applications of computer programs and personal computing software solutions, emphasizing their design and implementation. The certificate requires 27 semester credit hours of course work. Credit may be given for prior course work; however, a minimum of 21 credit hours must come from a Purdue University campus.

COURSE REQUIREMENTS (24 credit hours)

			credit hours
CPT	135	(Personal Computing Technology and Applications)	(3)
CPT	145	(Introduction to Information Systems)	(3)
CPT	172	(Database Application Development)	(3)
CPT	176	(Information Technology and Architecture)	(3)
CPT	230	(Data Communications)	(3)
CPT	250	(Programming with Object Structures)	(3)
CPT	255	(Programming with Data Structures)	(3)
CPT	280	(Systems Analysis and Design Methods)	(3)

SELECTIVE (3 credit hours)
As approved by advisor from one of the following disciplines: CPT, OLS, IET, MET, EET, CS, or MA.

PROGRESSION REQUIREMENTS

A grade of C or better is required in each course. Courses in which lower grades have been received must be retaken before progressing to the next course in sequence. An incomplete is not considered a passing grade. The pass/no pass option is not available for this certificate program.

FOOD SERVICE SPECIALIST CERTIFICATE

The Food Service Specialist Certificate Program is designed to increase professionalism while opening avenues for upward mobility, and is ideal for food service industry staff who would like to study part-time.

The certificate signifies the attainment of basic qualifications for work in fast food, fine dining, hotel food services, country clubs, and institutional food service. The certificate requires 15 hours of course work, which may also be applied to an associate or bachelor's degree at a later time. It's possible to earn this certificate in less than a year.

This certificate program is recognized by The Restaurant and Hospitality Association of Indiana. It is offered at the North Central campus in conjunction with the School of Consumer and Family Sciences of Purdue University at West Lafayette.

COURSE REQUIREMENTS (14 credit hours)

			credit hours
RHIT	191	(Food Service Sanitation)	(3)
RHIT	291	(Quantity Food Production)	(3)
RHIT	291L	(Quantity Food Production Lab)	(2)
RHIT	311	(Purchasing for Restaurants, Hotels, and Institutions)	(3)
RHIT	312	(Human Resource Management for Restaurants, Hotels, and Institutions)	(3)

ELECTIVES (2-3 credit hours)

			credit hours
RHIT	391	(Speciality Food Service/Catering) **or**	(3)
RHIT	491	(Beverages and Their Management)* **or**	(2)
RHIT	492	(Advanced Food Service Management)*	(4)

GENERAL BUSINESS CERTIFICATE

The certificate program was designed to provide a relatively quick introduction to the basics of business. It involves completing 27 credit hours of required and selective course work. At least 15 of those hours must be earned at a Purdue University campus. The curriculum is governed by the Community College Faculty Council of Purdue University North Central.

Students who wish to apply to the general business certificate program must have completed at least six semesters of English while in high school. They also must have completed a course of study and attained a level of achievement that reflects the upper half of their high school graduating class.

COURSE REQUIREMENTS (18 credit hours)

			credit hours
ENGL	101	(English Composition I)	(3)
ENGL	102	(English Composition II) **or**	(3)
GNT	220	(Technical Report Writing)	
MA	111	(Algebra) or higher math course †	(3)
GBG	127	(Introduction to Business)	(3)
GBA	227	(Principles of Accounting I) **or**	(3)
MGMT	200	(Introductory Accounting)	
GBM	329	(Principles of Marketing)	(3)

SELECTIVE COURSES (9 credit hours)

Choose from the following:

COM	114	(Fundamentals of Speech Communication)	(3)
GBA	228	(Principles of Accounting II)	(3)
CPT	107	(Computer Literacy) ††	(3)
GBG	260	(Business Law)	(3)
GBG	270	(Small Business & Entrepreneurial Ventures)	(3)
GBG	333	(Principles of Finance)	(3)
STAT	114	(Elements of Probability & Statistics)	(3)
OLS	274	(Applied Leadership)	(3)

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* Not offered at the Purdue University North Central Campus.

† MA 111 does not count for graduation credit toward the Associate of Science degree in general business.

†† Another appropriate computer class could be substituted with the permission of the chair of the General Business Section.

HEALTH OFFICE ADMINISTRATION CERTIFICATE

This certificate curriculum is similar to that for general business, but contains course requirements specific to health administration. The curriculum is governed by the Community College Faculty Council of Purdue University North Central. It contains 30 credit hours of required and selective courses. At least 18 hours must be earned at a Purdue University campus.

Students who wish to apply to enter this certificate program must have completed at least six semesters of English while in high school. They also must have completed a course of study and attained a level of achievement that reflects the upper half of their high school graduating class. Students who choose the Biology 213 selective for the certificate must have already taken two semesters of high school biology and/or chemistry or equivalent.

COURSE REQUIREMENTS (18 credits)			**credit hours**
CPT	107	(Computer Literacy)	(3)
ENGL	101	(English Composition I)	(3)
ENGL	102	(English Composition II) **or** GNT 220 (Technical Report Writing)	(3)
GBA	227	(Principles of Accounting I) **or** MGMT 200 (Introductory Accounting)	(3)
GBG	127	(Introduction to Business)	(3)
MA	153	(Algebra and Trigonometry I)	(3)

HEALTH OFFICE ADMINISTRATION MAJOR (3 credit hours)

GBH	200	(Medical Terminology)	(3)

ELECTIVES (9 credit hours)

COM	114	(Fundamentals of Speech Communication)	(3)
GBG	224/344	(Administrative Office Management/ Business Ethics)	(3)
GBG	260	(Business Law)	(3)
GBG	270	(Small Business and Entrepreneurial Ventures)	(3)
GBM	329	(Principles of Marketing)	(3)
OLS	274	(Applied Leadership)	(3)
BIOL	203	(Human Anatomy and Physiology)	(3)
PSY	120	(Elementary Psychology)	(3)
SOC	100	(Introductory Sociology)	(3)

HUMAN RESOURCES CERTIFICATE

(Department of Organizational Leadership and Supervision)

This option of the organizational leadership and supervision program allows progression from certificate to Associate of Science degree and on, if the student wishes, to the Bachelor of Science degree. It is offered in conjunction with the School of Technology of Purdue University at West Lafayette.

The credits accumulate, so the student who earns the bachelor's degree will have completed requirements for all three programs.

Working individuals and those contemplating a career in personnel or training who wish to explore the field before committing to a degree program can "test the water" by entering the certificate program. Designed to accommodate part-time and evening students, the curriculum consists of nine courses – eight in the supervision and management area and one in English composition.

PREREQUISITES (12 credit hours)			**credit hours**
ENGL	101	(English Composition I)	(3)
OLS	252	(Human Behavior in Organizations)	(3)
OLS	274	(Applied Leadership)	(3)
OLS	376	(Human Resource Issues)	(3)
REQUIRED TECHNICAL COURSES (15 credit hours)			
OLS	240	(Labor Relations Problems)	(3)
OLS	372	(Staffing and Performance Appraisal)	(3)
OLS	477	(Conflict Management)	(3)
OLS	487	(Leadership Philosophy)	(3)
OLS	xxx	Selective	(3)
Total credits required for the certificate:			(27)

Note: A minimum of 15 credit hours must be taken at Purdue University North Central. All certificate track students must meet admission requirements of the School of Technology and be admitted to the organizational leadership and supervision program. This certificate plan of study is an entry level, pre-associate degree program.

MECHANICAL ENGINEERING TECHNOLOGY CERTIFICATE

This certificate program is designed to respond to regional industrial needs for upgrading engineering department personnel in specific technical areas. The individual who is working in an engineering or an engineering certificate related area without benefit of a formal educational background will be brought to a high degree of specialization within a structured time period by utilizing only existing courses.

The curriculum consists of a 24-credit course of instruction. It is offered in conjunction with the School of Technology of Purdue University at West Lafayette.Upon completion, the participant will be awarded an appropriate occupational certificate.

The program is divided into two segments:

REQUIRED SECTION (12 credit hours)			**credit hours**
MET	141	(Materials I)	(3)
TG	110	(Technical Graphics Communications)	(3)
TG	200	(Survey of Computer-Aided Drafting and Design)	(3)
MA	153	(Algebra and Trigonometry 1)	(3)

BASIC SPECIALTY SECTION (12 credit hours)

Four courses which are considered as basic to the particular engineering technology used in the student's employment department. These are selected jointly by the student, the student's supervisor and the academic advisor to strengthen a particular technical engineering area with the understanding that all course prerequisites have been met. The courses in this section will be chosen to build upon knowledge and experience which the student has gained from previous courses and from work experience.

The courses offered will be those at the 100 and 200 level which are appropriate for inclusion in an approved mechanical engineering technology associate degree program. Certain approved 300 level courses may also be elected providing prerequisite courses are completed.

ORGANIZATIONAL LEADERSHIP AND SUPERVISION CERTIFICATE

This is an intensive and practical curriculum of 24 semester hours, intended to provide first line supervisors with the professional education needed to handle the technical problems which they encounter daily. Admission to the program is granted to those adults in management positions who meet certain entrance standards and requirements. Candidates may be admitted as degree or non-degree students. Specific questions concerning the program should be directed to the chairperson of the Technology and Engineering Section or to any organizational leadership and supervision faculty member at the North Central campus.

The program was developed by representatives of industry, professional foremen organizations and the University. It is designed to meet the needs of management, which is vitally concerned with training first line supervisors. It is offered in conjunction with the School of Technology of Purdue University at West Lafayette. Course selection is on the basis of a program worked out with the academic advisor and is carefully tailored to individual needs.

COURSE REQUIREMENTS (9 credit hours)

			credit hours
OLS	252	(Human Behavior in Organizations)	(3)
OLS	274	(Applied Leadership)	(3)
COM	114	(Fundamentals of Speech Communication)	(3)

CORE CURRICULUM (6 credit hours)

(Two of the following three courses are required in the basic core curriculum:)

OLS	240	(Labor Relations Problems)	(3)
OLS	376	(Human Resource Issues)	(3)
OLS	331	(Occupational Safety and Health)	(3)

ELECTIVES (9 credit hours)

Additional courses to make a total of 24 credit hours may be chosen in any approved combination.

QUALITY CONTROL CERTIFICATE

This certificate program provides training and instruction in the proper use of measuring instruments, and techniques of statistical quality control, including frequency distributions, process control charts and sampling plans. In addition, the course work provides a basis for practical implementation of these techniques in the quality control system of an industrial organization. An in-depth investigation of the jobs of quality control, the role of quality costs, determining customer needs, follow-up on field performance and feedback to further improve the quality system are integral parts of this program.

Candidates for this program are required to be formally admitted to Purdue University North Central. Mathematics placement tests are required prior to taking any mathematics course. Students may apply these courses toward an associate degree in industrial engineering technology or mechanical engineering technology as appropriate.

A certificate will be presented to those who successfully complete all course work.

COURSE REQUIREMENTS (21 credit hours) **credit hours**
(Listed in the order in which they should be taken.)

MA	153	(Algebra and Trigonometry I)	(3)
MA	154	(Algebra and Trigonometry II)	(3)
STAT	301	(Elementary Statistical Methods)	(3)
MET	141	(Materials I)	(3)
IET	204	(Techniques of Maintaining Quality)	(3)
IET	364	(Total Quality Control)	(3)
Technical Elective*			(3)

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* Business or Technical elective to suit each individual. Actual course selection, subject to advisor approval, may be from the following: CPT, MET, IET, EET, GBG, GBA, or MGMT.

COMMUNITY COLLEGE

The Community College is the unit of Purdue University North Central designed to provide flexible service to prospective students, employers and the public of north central Indiana. In addition to the standard Purdue University curricula described elsewhere in this bulletin, the Community College is able to initiate and conduct courses and programs not available on other Purdue University campuses.

One of the purposes of the Community College is to provide post high school educational opportunities for those who did not, while in high school, prepare to meet the entrance requirements for one of the several curricula for the University. The Community College operates a Bridge program for students who have academic deficiencies but who desire to prepare themselves to enter one of the standard curricula of the University.

In addition, the Community College provides a place where students not yet committed to a specific program of study can explore, experiment and mature in their thinking regarding future educational objectives. While in the Community College, a student can sample and explore the various offerings available on campus and profit from academic counseling while resolving doubts about ultimate academic goals. The Community College can also serve students who plan to complete their education at other institutions of higher education, including other campuses of Purdue University, but who wish to make a start toward their educational goals while living at home.

Exercising its flexibility, the Community College will design courses, programs and curricula to meet specific immediate and future community needs in cooperation with governmental and private agencies. Educational opportunities to provide upward mobility are made available. The general business program is an example.

BRIDGE PROGRAM

The Bridge program at Purdue University North Central helps students prepare for a degree-seeking program by providing developmental courses to overcome academic deficiencies, brush up on academic skills, meet University requirements, and develop effective study habits. The coursework develops a student's basic skills in three areas.

MATHEMATIC AND SCIENTIFIC SKILLS			credit hours
GNC	063	(Basic Mathematics)	(3)
GNC	064	(Fundamentals of Algebra)	(3)
GNC	065	(Plane Geometry)	(3)
GNC	088	(Fundamentals of Science)	(3)
MA	111	(Algebra)	(3)

COMMUNICATION SKILLS AND PREPARATORY CLASSES

GNC	070	(Review of Basic English)	(3)
GNC	071	(Reading Enhancement)	(3)
ENGL	100	(English Composition)	(3)

STUDY SKILLS

GNC	100	(Study Skills)	(3)

Some students take the complete series of bridge courses, while others need only one or two. Students needing only limited work in the bridge program may also take selected regular-credit courses simultaneously from the University. Those University courses can apply eventually toward a chosen degree program. *Note: ENGL 100, MA 111 and GNC 100 may be counted as electives in the School of Liberal Arts.*

GENERAL ADMISSION REQUIREMENTS

Purdue University North Central requires that applicants entering the Community College have a high school diploma or G.E.D. Students should demonstrate the potential ability to do well in college-level courses.

The University encourages each student to apply for her of his desired degree program rather than the bridge program. Members of the Admissions and the Community College staffs are trained to assess a student's transcripts. They will assign students to the Bridge program when necessary. All new students are required to take the Student Assessment and Measurement tests prior to registration.

LEAVING BRIDGE AND ENTERING A DEGREE PROGRAM

Students usually must do three things in order to leave the Bridge program and pursue an academic major.

1. They must demonstrate academic ability by completing 12 credit hours of college-level course work, earning a C or better in each class.
2. They must remediate academic deficiencies within their first 30 credit hours of course work. In other words, they must be sure to meet the entrance requirements set by the program of their choice.
3. Once ability has been demonstrated and appropriate entrance requirements have been met, a student must file a CODO request (Change of Degree Objective) with the Registration Office in Schwarz Hall.

GENERAL PLAN OF STUDY

First Semester

(3) GNC 063 (Basic Mathematics) **or** GNC 064 (Fundamentals of Algebra)
(3) GNC 100 (Study Skills)
(3) ENGL 100 (English Composition) **or** GNC 070 (Review of Basic English)
(3) GNC 071 (Reading Enhancement)
(3) Elective
(12-15)

Second Semester

(3) ENGL 101 (English Composition I) **or** ENGL 100 (English Composition–for those who had GNC 070 in their first semester)
(3) MA 111 (Algebra) **or** GNC 064 (Fundamentals of Algebra-for those who had GNC 064 in their first semester)
(3) COM 114 (Fundamentals of Speech Communication)
(3) GNC 088 (Fundamentals of Science)
(3) Elective
(12-15)

Any University course for which the student has the necessary prerequisites, may be selected as an elective in the Bridge program. The following is a list of courses which have no prerequisites. Before enrolling in any course, students should seek the advice of an academic advisor.

Note: *Students with reading skills below the college level should not attempt any of these courses until successfully completing GNC 071.*

ELECTIVES			**credit hours**
CPT	107	(Computer Literacy)	(3)
GBG	127	(Introduction to Business)	(3)
GBM	329	(Principles of Marketing)	(3)
HIST	151	(American History to 1877)	(3)
HIST	152	(United States Since 1877)	(3)
MUS	250	(Music Appreciation)	(3)
POL	101	(American Government & Politics)	(3)
PSY	120	(Elementary Psychology)	(3)
SOC	100	(Introductory Sociology)	(3)

Note: *Credits from these courses may apply toward a degree.*

TRANSFER PROGRAMS

One of the traditional functions of Purdue University North Central is to provide the first four or more semesters of academic work leading to a variety of bachelor's degree options. The student who desires to do so may complete a portion of the coursework leading to scores of specializations represented by various bachelor's degrees available on the several campuses of Purdue University while living at home.

By working closely with an academic advisor, such students can also complete as much as one-half of an academic program leading to junior standing in most colleges and universities in the United States.

Because Purdue University is accredited by the North Central Association of Colleges and Schools, all courses completed with a grade of C or better are likely to be accepted at the college of the student's choice. However, because requirements vary among universities, it is prudent to verify the appropriateness of all courses taken during the freshman and sophomore year with the university of intended upper division registration. Academic advisors will assist in the choice of courses when they are aware of the student's ultimate educational objective.

The following pages list some of the options available on other campuses of Purdue University and give sample programs for the first four semesters of such curricula. These are generally described in terms of requirements for the degrees on the West Lafayette campus. Because of slight variations between programs on different campuses of Purdue University, students should verify the appropriateness of the listed programs with the campus of intended registration. Since the listed sample programs for the freshman and sophomore year do not lead to degrees, they are given for guidance only and substitutions to meet particular variations anticipated in junior and senior year programs may be made freely.

Students are encouraged to secure a bulletin representing the appropriate school on the campus at which they intend to complete baccalaureate work begun at Purdue University North Central. The Dean of Students Office will assist in acquiring these materials.

AGRICULTURE PROGRAMS

The School of Agriculture at the West Lafayette campus offers more than 40 programs of study leading to the degrees of Bachelor of Science, Bachelor of Science in Forestry, and Bachelor of Science in Landscape Architecture. Detailed descriptions of degree requirements, departmental requirements, and specific programs can be found in the bulletin of the School of Agriculture, West Lafayette.

Four semesters of the four years required for most of the above programs may be completed at Purdue University North Central. These transfer programs are administered by the Biology / Chemistry Section. For information, contact the agriculture advisor or the section office.

GENERAL PLAN OF STUDY*

FRESHMAN YEAR

First Semester	Second Semester
(2) BIOL 121 (Biology I: Diversity, Ecology, and Behavior)	(2) BIOL 131 (Biology II: Development, Structure, & Function of Organisms)
(2) BIOL 122 (Laboratory in Biology I)	(2) BIOL 132 (Laboratory in Biology II)
(3) CHM 111 (General Chemistry) †	(3) CHM 112 (General Chemistry)
(3) ENGL 101 (English Composition I)	(3) ENGL 102 (English Composition II)
(3) MA 223 (Introductory Analysis I) ††	(3) MA 224 (Introductory Analysis II)
(3) Elective	(3) Elective
(16)	(16)

SOPHOMORE YEAR

Third Semester	Fourth Semester

See the agriculture advisor for an appropriate plan of study for these semesters.

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* There are variations in the plans of study for the various options. Students should obtain a current School of Agriculture catalog from West Lafayette and see their agriculture advisor for further information.

† Some agriculture options require CHM 115/116; **if interested in the A.S. in Science, CHM 115 and CHM 116 must be taken.**

†† MA 153/154 will not count toward graduation, but should be taken if a student is not prepared for MA 223/224.

GENERAL PLAN OF STUDY IN PREFORESTRY

FRESHMAN YEAR

First Semester	Second Semester
(2) BIOL 121 (Biology I: Diversity, Ecology, and Behavior)	(2) BIOL 131 (Biology II: Development, Structure, & Function of Organisms)
(2) BIOL 122 (Laboratory in Biology I)	(2) BIOL 132 (Laboratory in Biology II)
(3) CHM 111 (General Chemistry)	(3) CHM 112 (General Chemistry)
(3) MA 223 (Introductory Analysis I)	(3) MA 224 (Introductory Analysis II)
(3) ENGL 101 (English Composition I)	(3) ENGL 102 (English Composition II)
(3) Humanities-Social Science Elective	(3) COM 114 (Fundamentals of Speech Communication)
(16)	(16)

GENERAL PLAN OF STUDY IN PREVETERINARY MEDICINE†**

(See PU/NC's B.S. in Biology)

CONSUMER AND FAMILY SCIENCES

The primary purpose of the School of Consumer and Family Sciences is the intellectual development of its students and their preparation for professional services to the family and consumer. Four departments make up the school: Child Development and Family Studies, Consumer Sciences and Retailing, Foods and Nutrition, and Restaurant, Hotel, Institutional and Tourism Management, and graduates receive the Bachelor of Science degree. For details of the many programs available, write the School of Consumer and Family Sciences, Purdue University, West Lafayette. Students should enroll in one of the following options (majors):

CONSUMER SCIENCES AND RETAILING WITH OPTIONS IN:

Apparel Technology
Consumer Affairs
Financial Counseling & Planning
Retail Management
Sales & Sales Management
Small Business

FOODS AND NUTRITION WITH OPTIONS IN:

Coordinated Program in Dietetics
Didactic Program in Dietetics
Food Science
Foods and Nutrition in Business
Nutrition, Fitness, and Health
Nutrition Science – Premedicine

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† Students who complete the preveterinary program cannot be assured of admission to veterinary school.

** Students are encouraged to complete the bachelor of science degree in Biology before applying to the School of Veterinary Medicine.

RESTAURANT, HOTEL, INSTITUTIONAL AND TOURISM MANAGEMENT WITH EMPHASES IN:

- Club Management
- Hospitality Management
- Hotel
- Restaurant
- Toursim
- Contract & Institutional Foodservice Management

ASSOCIATE DEGREE:

Food Service and Lodging Supervision

To prepare students for a career in the hospitality industry, Purdue University North Central offers an associate degree program in food service and lodging supervision. The program is designed to prepare individuals for middle management positions in the hospitality industry. Graduates of this program assume responsibility for providing services in a multitude of situations where people eat or live away from home. For more information, refer to the Associate Degree section of this bulletin

Graduates of this program who wish to continue in this field can transfer to the West Lafayette campus and enroll in any one of several four-year options in the Department of Restaurant, Hotel, Institutional and Tourism Management.

OPTIONS IN CHILD DEVELOPMENT AND FAMILY STUDIES

- Early Childhood Education and Intervention (ECEI)
- ECEI with Kindergarden Endorsement
- ECEI with Child Health Specialization
- Individual and Family Studies
- Youth, Adult, and Family Services

INTERDISCIPLINARY OPTIONS

- Consumer/Homemaking Education
- Consumer/Homemaking Education/ Consumer Education Emphasis
- Consumer/Homemaking and Family Life Certification/Extension Emphasis
- Occupation Education
- Occupation Education/Child Care Emphasis
- Occupation Education/Food Service Emphasis
- Occupation Education/Nutrition Education Emphasis
- Option X (see advisor)

GENERAL PLAN OF STUDY

FRESHMAN YEAR

A sample plan of study for your freshman year may include the following:

	First Semester		**Second Semester**
(3)	ENGL 101 (English Composition I)	(3)	ENGL 102 (English Composition II)
(3)	CHM 111 (General Chemistry)	(3)	CHM 112 (General Chemistry)
(3)	SOC 100 (Introductory Sociology)	(3)	PSY 120 (Elementary Psychology)
(3)	COM 114 (Fundamentals of Speech Communication)	(3)	ECON 210 (Principles of Economics) **or** ECON 251 (Microeconomics) **or** ECON 252 (Macroeconomics)
(3)	MA 111, 153 **or** 223 (Mathematics course appropriate to student's background)	(3-6)	Consumer and Family Sciences courses
___	MA 161 (for F&N majors)	___	
(15)		(15-18)	

ENGINEERING PROGRAMS

Freshman engineering is available at the Purdue University North Central campus. This basic core of courses common to the various professional engineering programs can lead to study in: aeronautics and astronautics, agricultural engineering, chemical engineering, civil engineering, electrical engineering, engineering sciences, industrial engineering, mechanical engineering, materials science, metallurgical engineering, nuclear engineering, and interdisciplinary engineering on the West Lafayette campus.

FRESHMAN ENGINEERING

This program of study leads to admission in one of the Schools of Engineering. The freshman program of study in which an individual student is placed is determined by the College Entrance Examination Board tests and school record data.

It can be completed in one year. There are alternate programs of study available – some for the very well prepared, some for those less well prepared. Certain students have essentially completed their freshman requirements by their high school work, while others may require more than two semesters to prepare themselves for the professional engineering schools.

Each beginning engineering student is advised individually by an engineering faculty advisor to ensure that the student is properly placed in a program where there is a high probability of success. Prospective beginning engineering students are encouraged to visit the engineering faculty advisor at Purdue University North Central as early as practicable in their junior or senior year in high school.

Students successfully completing this program may transfer to the West Lafayette campus and pursue the engineering major of their choice (if qualified).

GENERAL PLAN OF STUDY

(For those students fully qualified upon entrance)

FRESHMAN YEAR

First Semester	Second Semester
(5) MA 161 (Plane Analytic Geometry & Calculus I)	(5) MA 162 (Plane Analytic Geometry & Calculus II)
(4) CHM 115 (General Chemistry)	(4) CHM 116 (General Chemistry)
(3) ENGL 101 (English Composition I)	(4) PHYS 152 (Mechanics)
(3) ENGR 195E ("C" or "C++" Language Programming for Engineering and Technical Applications)	(3) COM 114 (Fundamentals of Speech Communication)
(2) TG 155 (Graphical Communication & Spatial Analysis) **or**	(1) ENGR 100 (Freshman Engineering) **or**
(1) ENGR 100 (Freshman Engineering)	(2) TG 155 (Graphical Communication and Spatial Analysis)
(17/18)	(17/19)

Students enrolled in freshman engineering may pursue selected second-year engineering courses on the North Central campus contingent upon enrollment in the individual courses. These sophomore courses are transferable to West Lafayette.

Students who complete the two years of engineering at the Purdue North Central campus may have satisfied the requirements for an Associate in Science degree. See page 63.

SOPHOMORE YEAR

Third Semester	Fourth Semester
(4) MA 261 (Multivariate Calculus)	(4) MA 262 (Linear Algebra & Differential Equations)
(3) ME 270 (Basic Mechanics I)	(3) ME 200 (Thermodynamics I)
(3) GEN ED Elective *	(3) GEN ED Elective *
(3) PHYS 241 (Electricity & Optics)	(3) GEN ED Elective *
(3) EE 201 (Linear Circuit Analysis I)	(3) GEN ED Elective *
(1) EE 207 (Electronic Measurement Techniques)	
(17)	(16)

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* General education electives must be selected from a list of approved courses as approved by the School of Engineering. See a North Central faculty advisor for the current approved listing.

COOPERATIVE PROGRAMS WITH INDUSTRY

Entrance into five-year cooperative education programs, administered by West Lafayette, is available to Purdue University North Central students in all of the engineering disciplines. Students participating in these programs alternate periods of attendance at the University with periods of work experience at engineering or industrial firms. The co-op experience begins after the completion of the freshman engineering requirements with a minimum GPA of 3.0. Prospective co-ops should contact the engineering advisor at the North Central campus for information on eligibility for participation in the program.

While completing the requirements for an engineering degree, students gain a realistic concept of the challenge, working conditions, and rewards of being a member of the engineering profession.

Students planning a graduate program gain experiences with instrumentation and experimental techniques that are a valuable asset for later thesis work. Students often earn nearly all of their educational expenses while working for their cooperative employer.

Upon completion of the program, the students receive the regular Bachelor of Science degrees and a certificate indicating their completion of the cooperative education program.

HEALTH SCIENCES PROGRAMS

The School of Health Sciences at West Lafayette offers a variety of study areas, including medical technology, health physics, environmental and occupational safety and health, environmental toxicology, environmental assessment, and related environmental health programs. It also administers the prepharmacy program. Students completing the school's programs and gaining experience in the field may qualify for professional certification.

The first four semesters and possibly an additional two semesters of many of the programs are available at the North Central campus. The student should contact an advisor to determine if a third year of course work is available in a specific option. If planning to transfer to the West Lafayette campus to complete a program of study, the student should consult the School of Health Sciences bulletin.

CAREER OPPORTUNITIES

Undergraduate plans of study are offered in the following disciplines:

Prepharmacy – a preprofessional curriculum for students who wish to apply for admission to the professional program in the School of Pharmacy and Pharmacal Sciences. The School of Pharmacy and Pharmacal Sciences does not admit students directly from high school; therefore, if you expect to apply for admission to this school, you should enroll as a prepharmacy student in the School of Health Sciences.

Medical Technology – a branch of medicine concerned with the performance of clinical laboratory tests that provide information to aid physicians in the diagnosis and treatment of disease.

Occupational Safety and Health (Industrial Hygiene) – the study of hazardous materials and conditions in the industrial environment with emphasis on the control of factors that affect our general health and well-being.

Preallied Health – a preprofessional curriculum for students who wish to apply for admission to allied health programs at other universities.

Health Physics – Health physics is the study of the principles and procedures of providing protection for individuals, the population, and the environment from the harmful effects of ionizing and nonionizing radiation.

Environmental Health Sciences – During the past two decades, public concern about the quality of the environment has increased, resulting in several major environmental policy decisions and the creation of government agencies to administer and monitor these policies. The purpose of the environmental health science program is to develop individuals who have the education and training required to deal with the complex environmental problems and issues of today and tomorrow.

General Health Sciences – The most outstanding feature of the general health sciences curriculum is its interdisciplinary nature. Its flexibility allows students to prepare for many kinds of careers related to human health. Students also may choose the general health sciences as preparation for entry into graduate programs in areas such as public health and health care management.

GENERAL PLAN OF STUDY IN PREPHARMACY

FRESHMAN YEAR

First Semester

(2) BIOL 121 (Biology I: Diversity, Ecology & Behavior)
(2) BIOL 122 (Laboratory in Biology I)
(4) CHM 115 (General Chemistry)
(3) ENGL 101 (English Composition I)
(3) MA 223 (Introductory Analysis I)*
(3) ECON 210 (Principles of Economics)
(17)

Second Semester

(2) BIOL 131 (Biology II: Development, Structure & Function of Organisms)
(2) BIOL 132 (Laboratory in Biology II)
(4) CHM 116 (General Chemistry)
(3) ENGL 102 (English Composition II)
(3) MA 224 (Introductory Analysis II)*
(3) Elective
(17)

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* MA 161-162 may be substituted for MA 223-224. Students with insufficient preparation may take MA 153-154 and start a calculus sequence in the second or third semester. This does not interfere with their admission procedure.

SOPHOMORE YEAR

Third Semester

(4) BIOL 213 (Human Anatomy and Physiology)
(3) CHM 255 (Organic Chemistry)
(1) CHM 255L (Laboratory in Organic Chemistry)
(4) PHYS 220 (General Physics I)
(5) BIOL 322 (Microbiology - 3 cr.) and BIOL 323 (Microbiology Laboratory - 2 cr.)
or
(4) BIOL 221 (Introduction to Microbiology)

(16-17)

Fourth Semester

(4) BIOL 214 (Human Anatomy and Physiology)
(3) CHM 256 (Organic Chemistry)
(1) CHM 256L (Laboratory in Organic Chemistry)
(4) PHYS 221 (General Physics II); **recommended**
(3) Electives

(15)

MEDICAL TECHNOLOGY

The medical technology curriculum is structured so that a student can study for three years at Purdue University and one year at an affiliated school of medical technology. Known as the "three-plus-one" program, this plan of study allows the student to complete, by the end of the junior year, all of the coursework required for admission to a hospital-based training program during the senior year.

Hospitals are very selective. The student must maintain an above-average gradepoint in order to be selected by a hospital program. In particular, emphasis will be placed on performance in biology and chemistry courses. A minimum of 90-95 credit hours must be completed by the end of the junior year to qualify for clinical studies.

Sometime during the sophomore year at Purdue University North Central, the student should plan to meet with the coordinator at Purdue's medical technology program on the West Lafayette campus. The coordinator will assist in scheduling junior classes at the main campus and also provide information about the clinical studies offered through affiliated hospital laboratories.

See first three years of PU/NC's B.S. in Biology; Medical Technology majors must take BIOL 213/214 and OLS 274.

GENERAL HEALTH PHYSICS, GENERAL HEALTH SCIENCES, OCCUPATIONAL SAFETY AND HEALTH

(Industrial Hygiene)

The first four semesters of these majors are available at Purdue University North Central.

Because of growing public awareness of the need for environmental pollution control and worker protection, increasing attention is being focused on these problems at all levels of society. The occupational safety and health areas are concerned with the study, management, and control of natural and man-made factors in the general environment and in the work place and their relationship to human health and well-being.

The occupational safety and health area requires a well-coordinated interdisciplinary approach. Thus, the curriculum relies heavily on the biological, chemical, physical, mathematical, engineering, and health sciences. Graduates will be capable of identifying, analyzing, and promoting control of health and safety hazards in the general and occupational environments; recommending procedures for controlling health hazards using scientific and engineering principles in power systems, ventilation, noise control, and materials and chemical handling; serving and interacting with the governmental regulatory bodies; and promoting human health in the work and community environments.

See A.S. in Science (Biology emphasis); in addition, Health Science majors must take BIOL 213/214 and OLS 331. ***Students not interested in the A.S. in Science can take CHM 111/112 instead of CHM 115/116.***

COOPERATIVE PROGRAMS IN HEALTH SCIENCES

The following programs are offered by Purdue University North Central in cooperation with Indiana University Northwest:

ASSOCIATE DEGREE
- Health Information Management
- Dental Hygiene
- Health Information Technology
- Radiation Therapy
- Radiologic Technology

CERTIFICATE
- Coding
- Dental Assisting
- Phlebotomy

For more information, contact PU/NC's Biology/Chemistry Section.

LIBERAL ARTS PROGRAMS

Purdue University North Central offers a Bachelor of Arts degree in English, a Bachelor of Liberal Studies, and nearly 60 credit hours toward a bachelor's degree in most programs offered in the School of Liberal Arts. By transferring to one of the other campuses of the University, or another college or university, the student can complete the work leading to the Bachelor of Arts or the Bachelor of Science degree with a variety of major options. See also the descriptions of the Bachelor of Liberal Studies in another section of this bulletin.

Attainment of the objectives of the School of Liberal Arts is accomplished in two ways: through the specialized knowledge acquired by taking major or minor programs in one or more of the subjects offered by the departments of the school, and through the opportunity to gain skill and knowledge in other areas of learning through a combination of requirements and free electives.

Students interested in completing the bachelor's degree in liberal arts should obtain a bulletin describing these programs on the campus of intended upper division registration. For the programs available in West Lafayette, as well as information on prerequisite courses needed and major-specific requirements, contact the School of Liberal Arts, Purdue University, West Lafayette.

Students can take courses that fulfill most of the Liberal Arts West Lafayette, general education requirements, as well as the requirements for some majors, while attending Purdue University North Central. The credit hours column (below) indicates the number of credit hours needed to complete a major, minor or concentration.

DEPARTMENTS AND PROGRAMS

AUDIOLOGY & SPEECH SCIENCES	credit hours
Audiology and Speech Sciences Major	31
Speech-Language-Hearing Pre-Professional Concentration	43
Speech-Language-Hearing Science Concentration	43
COMMUNICATION	
Concentration in Advertising	45
Concentration in Interpersonal Communication	45
Concentration in Journalistic Communication	45
Concentration in Mass Communication	45
Concentration in Organizational Communication	45
Concentration in Public Communication	45
Concentration in Public Relations	45
Concentration in Telecommunication	44
Communication Minor	15
General Communication Major	24
Pre-Communication	12

ENGLISH

Comparative Literature Area	45
Creative Writing Major	33
Creative Writing Minor	12
English Major	30
English Minor	12
Professional Writing Major	33

FOREIGN LANGUAGES AND LITERATURES

French Concentration	44
French Major	35
French Minor	15
German Concentration	44
German Major	3
German Minor	15
Italian Minor	15
Japanese Minor	15
Russian Concentration	44
Russian Major	35
Russian Minor	15
Spanish Concentration	44
Spanish Major	35
Spanish Minor	15

HISTORY

History Major	33
History Minor	12

HEALTH, KINESIOLOGY, AND LEISURE STUDIES

Bachelor of Physical Education Core Requirements	42
Athletic Training Concentration	44-46
Exercise and Fitness Major	35
Health Promotion Concentration	45
Health Promotion Major	35
Health Promotion Minor	12
Movement and Sports Sciences Major	30
Recreation Studies Concentration B.A. Degree	45
Recreation Studies Major	30
Recreation Studies Minor	15

INTERDISCIPLINARY

Afro American Studies Major	30
Afro American Studies Minor	15
Asian Studies Minor	15
Classical Studies Minor	15
Comparative Literature Area	45
Interdisciplinary Film Major	32
Jewish Studies Minor	15

Linguistics Major	33
Linguistics Minor	15
Medieval Studies Major	33
Medieval Studies Minor	15
Religious Studies Major	24
Religious Studies Minor	12
Science and Culture	33
Women's Studies Minor	12

PHILOSOPHY

Philosophy Major	30
Philosophy Minor	12

POLITICAL SCIENCE

Political Science Major	33
Political Science Minor	12

PSYCHOLOGY

Psychology Major	33
Psychology Minor	12

SOCIOLOGY AND ANTHROPOLOGY

Anthropology Major	30
Anthropology Minor	9
Law and Society Major	33
Law and Society Minor	12
Sociology-Anthropology Concentration	39
Sociology Major	33
Sociology Minor	15

THEATRE

Theater Area	45
Theatre Concentration-Acting Option	44
Theatre Concentration-Stage Management Option	45
Theatre Concentration-Theatre Design and Technology Option	45
Theatre Major	34
Theatre Minor	14

VISUAL AND PERFORMING ARTS

Art and Design Minor	15
Art History Major	33
Art History Minor	15
Dance Minor	15
Fine Arts Concentration	45
Industrial Design Concentration	45
Interior Design Professional Program	60
Music History and Literature Minor	15
Music Theory Minor	15

	credit hours
Photography Major	42
Photography Minor	15
Photography Concentration	42
Visual Communications Design Concentration	43-44

The following sample study plan for the first four semesters will satisfy most of the preceding major areas in liberal arts and social sciences.

GENERAL PLAN OF STUDY

FRESHMAN YEAR

First Semester	Second Semester
(3) ENGL 101 (English Composition I)	(3) ENGL 102 (English Composition II)
(3) Foreign Language 101	(3) Foreign Language 102
(3) COM 114 (Fundamentals of Speech Communication)	(3) SOC 100 (Introductory Sociology)
(3) MA 152 (College Algebra for Liberal Arts) or MA 153 (Algebra and Trigonometry I)	(3) STAT 114 (Elements of Probability and Statistics)
(3) HIST 151 (American History to 1877) or POL 101 (American Government and Politics)	(3) PHIL 110 (Introduction to Philosophy) or HIST 104 (Introduction to the Modern World)
(15)	(15)

SOPHOMORE YEAR

Third Semester	Fourth Semester
(3) ASTR 263 (Descriptive Astronomy: The Solar System) or BIOL 121/122 (Biology I: Diversity, Ecology, and Behavior)	(3) GEOS 120 (Introduction to Geography) or F&N 303 (Essentials of Nutrition)
(3) PSY 120 (Elementary Psychology)	(3) Gender Issues Courses (PSY 239, IDIS 280, ENGL 360, or PHIL 225)
(3) A&D 255 (Art Appreciation) or MUS 250 (Music Appreciation)	(3) Foreign Language 202
(3) Foreign Language 201	(3) Major Requirement or Elective
(3) PHIL 111 (Ethics) or SOC 220 (Social Problems)	(3) Major Requirement or Elective
15	(15)

MANAGEMENT PROGRAMS

The School of Management's programs provide an appreciation for the United States economic system and an understanding of the role of business. The Purdue management programs also give each student a good understanding of the interdependence of the operating functions of business.

School of Management programs develop graduates who are specially qualified to understand changing business dynamics and who are well prepared for careers in high-technology industries.

Recent graduates from the Purdue School of Management are pursuing successful careers in many areas including accounting, economics, marketing, sales, and consulting. These graduates occupy important positions in manufacturing companies, financial institutions, service companies, and in public accounting and consulting firms, to mention a few. Others successfully follow further educational opportunities or enter government service careers.

INDUSTRIAL MANAGEMENT

The Bachelor of Science program in industrial management is designed for students who wish to pursue careers in the technical areas of business, such as industrial sales in industries with a strong relationship between management and computer and engineering disciplines. As modern society makes increasing use of new technology, managers must keep informed to handle their own jobs effectively and to understand and communicate with technical specialists. The industrial management curriculum, by including a required technical sequence, enables the student to take advantage of Purdue University's excellent resources in science, computer science, manufacturing engineering, and management.

This program is designed to provide students with a broad understanding of the basic sciences so essential for effective management. Also included is a concentration of mathematics and quantitative methods courses designed to provide the necessary training in the rigorous analytic techniques applicable to management decisions.

Students are required to select a minor which typically consists of five courses carrying a total of at least 15 credits taken in the sophomore, junior, and senior years. This minor must be chosen from some area of science, engineering or manufacturing management. The approved sequence of courses furnishes a better understanding of the technical aspects of professional competence in the chosen field and increases managerial efficiency in working with colleagues, as well as broadening the background desired for other managerial activities.

MANAGEMENT

The management program is designed for students who wish to pursue careers in non-technical areas of the business world. Its aim is to develop a broad perspective of the business organization and the economic environment in which it operates. To that end, the program emphasizes a liberal arts base and includes required courses in economic principles, mathematics, statistics, accounting, law, marketing, finance, and strategic management. Students can add to their programs, related courses which are of special interest. Elective hours permit either further concentration in management and economics or exploration of topics in other disciplines.

Business and government leaders, employment officers, and institutions for advanced study (such as law schools) strongly endorse this type of management education. This program satisfies the need of future junior managers for a broad, analytically oriented base on which to build specific training and experience received on the job.

ACCOUNTING

Graduates of the accounting program have several career paths from which to choose. One major career path leads to employment in one of the manufacturing or service industries as:

- a general accountant in charge of the accounting records of a company;
- a cost accountant involved in determining costs for a product or service;
- a budget officer in charge of projecting the costs and revenues for the economic unit's future plans;
- a tax accountant responsible for calculating the proper accounts owed to the taxing authorities;
- an internal auditor responsible for determining that the operations of the company are being carried out in accordance with the written directives of the company.

A second career path is that of a certified public accountant (CPA). Certified public accountants examine the financial statements prepared by individual companies to determine that these statements are fairly presented. In addition, they do extensive work in income tax preparation and planning and have a variety of career paths in advising or consulting with managements of various companies on a wide variety of business problems.

A third career path involves pursuing graduate work or going into one of the many branches of government accounting.

Graduates completing the accounting curriculum are qualified to take the certified public accountant's examination in Indiana, as well as other professional examinations.

ECONOMICS

The Bachelor of Science in economics is offered jointly by the Krannert School of Management and the School of Liberal Arts. Students graduating from this curriculum receive a liberal arts education enhanced by a strong analytical background. The course work begins with a foundation in microeconomics, macroeconomics, mathematics statistics, and humanities. Advanced courses in such areas as comparative economics systems, economic history, international economics, governmental regulation of business, transportation economics, public finance and taxation, money and finance, and urban economics provide the main structure of the program.

Career opportunities for these students of broad vision and well-honed intellectual skills are found in federal, state, and local government; business management; finance; banking; marketing; public administration; and insurance. In addition, many students find economics an excellent preparation for law or graduate school.

ADVANCEMENT TO MANAGEMENT DIVISION

With few exceptions, School of Management courses numbered 300 or higher are open only to students who have been admitted to the Management Division. Consequently, such admission is necessary to the completion of the school's baccalaureate programs. Students pursuing the management, accounting, and industrial management programs are guaranteed admission if they complete all course requirements specified in the first two semesters of the chosen plan of study with a management admissions index (MAI) of at least 2.75 (2.60).* The MAI is the average of grades earned in certain specified courses as noted in the plans of study set out on the following pages. Each semester, the records of those students whose MAI is below 2.75 (2.60)* but at or above 2.50 (2.40)* will be reviewed by a faculty committee to determine whether sufficient cause exists to warrant admission as an exception to the 2.75 (2.60)* standard. Any such exceptions will be granted only to the extent that space permits and will be based solely upon the committee's judgment regarding the strength of the student's academic record. Students denied admission may reapply in subsequent semesters. To ensure continuity in the student's academic progress, at least 15 hours of the courses comprising the management admissions index must be taken at Purdue, and the three management and economics courses contained in the index must be taken in the Purdue School of Management.

Students in the economics program are guaranteed admission if they complete all courses specified in the first three semesters of that program with a minimum graduation index of 2.75 (2.60).* Those who complete the first three semesters of course requirements with an index less than 2.75 (2.60)* but at or above 2.50 (2.40)* may be admitted as a result of a faculty review of their academic records. All students are encouraged to consult closely with their academic advisors regarding their academic performance and progress.

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* GPA in parentheses is for industrial management.

Upon completion of approximately 60 hours including the mathematics, statistics, economics, accounting, and computer courses listed in the following programs, students will be required to transfer to the West Lafayette campus to finish the academic requirements to receive their baccalaureate degree. Those contemplating completion of their degree requirements at the Purdue University Calumet campus should consult with their academic advisor as early as possible after enrollment.

GENERAL PLANS OF STUDY

INDUSTRIAL MANAGEMENT – PRE-MANAGEMENT DIVISION

FRESHMAN YEAR

First Semester	Second Semester
(5) MA 161 (Plane Analytic Geometry & Calculus I) (MAI)	(5) MA 162 (Plane Analytic Geometry & Calculus II) (MAI)
(3) MGMT 200 (Introductory Accounting) (MAI)†	(3) MGMT 201 (Management Accounting I)
(3) ENGL 101 (English Composition I) (MAI)	(3) ENGL 102 (English Composition II) (MAI)
(4) Chemistry **or** Physics ††	(4) Chemistry **or** Physics ††
(3) PSY 120 (Elementary Psychology)	(3) ECON 251 (Microeconomics) (MAI)†
(18)	(18)

SOPHOMORE YEAR

Third Semester	Fourth Semester
(4) MA 261 (Multivariate Calculus)	(3) STAT 225 (Introduction to Probability Models)
(3) ECON 252 (Macroeconomics)	(3) OLS 240 (Labor Relations Problems)
(3) GBG 260 (Business Law)	(3) SOC 100 (Introductory Sociology)
(3) HIST 102, 103 **or** 104 (World History)	(3) ENGL 420 (Business Writing)
(3) COM 114 (Fundamentals of Speech Communication) (MAI)	(3) Free Elective
(16)	(15)

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† Must be taken at Purdue University.

†† Completion of any two courses (eight hours minimum) taken from CHM 115, 116, PHYS 152, 220, 221, 241, 251, 261. "C" grades or higher must be earned in eight hours of science.

MANAGEMENT – PRE-MANAGEMENT DIVISION

FRESHMAN YEAR

First Semester	Second Semester
(3) MA 153 (Algebra and Trigonometry I) (MAI)	(3) MA 154 (Algebra and Trigonometry II) (MAI)
(3) MGMT 200 (Introductory Accounting) (MAI)†	(3) MGMT 201 (Management Accounting I)
(3) ENGL 101 (English Composition I) (MAI)	(3) ENGL 102 (English Composition II) (MAI)
(3) Natural Science††	(3) Natural Science††
(3) PSY 120 (Elementary Psychology) **or** SOC 100 (Introductory Sociology)	(3) ECON 251 (Microeconomics) (MAI)†
	(3) Free Elective
(15)	(18)

SOPHOMORE YEAR

Third Semester	Fourth Semester
(3) MA 223 (Introductory Analysis I) (MAI)	(3) MA 224 (Introductory Analysis II) (MAI)
(3) ECON 252 (Macroeconomics)	(3) STAT 225 (Introduction to Probability Models)
(3) GBG 260 (Business Law)	(3) OLS 240 (Labor Relations Problems)
(3) COM 114 (Fundamentals of Speech Communication) (MAI)	3) HIST 102, 103 or 104 (World History)
(3) Elective	(3) Elective
(15)	(15)

ACCOUNTING – PRE-MANAGEMENT DIVISION

FRESHMAN YEAR

First Semester	Second Semester
(3) MA 153 (Algebra and Trigonometry I) (MAI)	(3) MA 154 (Algebra and Trigonometry II) (MAI)
(3) MGMT 200 (Introductory Accounting) (MAI)†	(3) MGMT 201 (Management Accounting I)
(3) ENGL 101 (English Composition I) (MAI)	(3) ENGL 102 (English Composition II) (MAI)
(3) Natural Science††	(3) Natural Science ††
(3) PSY 120 (Elementary Psychology)	(3) ECON 251 (Microeconomics) (MAI)†
(15)	(15)

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† Must be taken at a Purdue Campus.

†† Natural Science: Selection of any two courses (six hours minimum) from the lists of approved options maintained by the management advisory office.

SOPHOMORE YEAR

Third Semester

(3) MA 223 (Introductory Analysis I) (MAI)
(3) ECON 252 (Macroeconomics)
(3) GBG 260 (Business Law)
(3) COM 114 (Fundamentals of Speech Communication) (MAI)
(3) Elective
(15)

Fourth Semester

(3) MA 224 (Introductory Analysis II) (MAI)
(3) STAT 225 (Introduction to Probability Models)
(3) OLS 240 (Labor Relations Problems)
(3) HIST 102, 103 **or** 104 (World History)
(3) Elective
(15)

ADVANCEMENT TO ECONOMICS DIVISION

(Jointly sponsored with the School of Liberal Arts)

Students are automatically admitted to Economics Division with a grade point average (GPA) of 2.75 after completing freshman and first-semester sophomore classes. (Foreign Language 201 may be completed after admission to Economics Division.) When enrolled in fourth-semester courses, all pre-economics students with a GPA of 2.5 – 2.75 are eligible for faculty review.

Upon completion of approximately 60 hours, students will be required to transfer to the West Lafayette campus to finish the academic requirements to receive their baccalaureate degrees. Those contemplating completion of their degree requirements at the Purdue University Calumet campus should consult with their academic advisor as early as possible after enrollment.

GENERAL PLAN OF STUDY

FRESHMAN YEAR

First Semester

(3) MA 153 (Algebra and Trigonometry I)
(3) History*
(3) ENGL 101 (English Composition I)
(3) COM 114 (Fundamentals of Speech Communication)
(3) Foreign Language 101
(15)

Second Semester

(3) MA 154 (Algebra and Trigonometry II)
(3) PHIL 111 (Ethics)
(3) ENGL 102 (English Composition II)
(3) ECON 251 (Microeconomics)
(3) Foreign Language 102
(15)

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* Completion of any two approved courses: HIST 102, 103, 104, 151, 152.

SOPHOMORE YEAR

Third Semester	Fourth Semester
(3) MA 223/161 (Calculus I)	(3) MA 224/162 (Calculus II)
(3) ECON 252 (Macroeconomics)	(3) STAT 225 (Introduction to Probability Models)
(3) Science †	(3) Science †
(3) ENGR 195E ("C" or "C++" Language Programming for Engineering and Technical Applications)	(3) PSY 120 (Elementary Psychology) **or** POL 101 (American Government and Politics) **or** SOC 100 (Introductory Sociology)
(3) Foreign Language 201	(3) History*
(15)	(15)

SCIENCES

COMPUTER SCIENCES

The Department of Computer Sciences at West Lafayette offers bachelor's degree options in five areas. Students may take many electives and other required freshman/sophomore courses at the North Central campus. A limited number of the required computer science courses are offered. An associate degree program in computer technology is also available on the campus, as described earlier in this bulletin. The bachelor's degree options are:

General computer sciences
Scientific computing
Interdisciplinary studies
Business data processing
Systems and programming

EARTH AND ATMOSPHERIC SCIENCES

Earth and atmospheric sciences focus on the study of the atmosphere, oceans, and the solid earth. These disciplines are concerned with the quality of life and the physical environment in which we live. Earth and atmospheric scientists have accepted the challenge of arriving at solutions to basic and applied problems that affect our planet. The Department of Earth and Atmospheric Sciences at West Lafayette offers three programs leading to the Bachelor of Science degree:

Solid earth science
Earth science teaching
Atmospheric science (meteorology)

Students may take many electives and other required freshman/sophomore courses at the North Central campus. However, none of the required Earth and Atmospheric Sciences courses are offered.

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* Completion of any two approved courses: HIST 102, 103, 104, 151, 152.

† Completion of any two approved courses: BIOL 203, 204, 205, 206, 211, 212; CHM 111, 112; GEOS 120; PHYS 210, 270; ASTR 263, 264.

TECHNOLOGY PROGRAMS

The School of Technology at West Lafayette offers two undergraduate programs of study in technology; industrial technology (IT) and technical graphics (TG), which are not approved degree programs at the North Central Campus. However, many of the courses required for the Associate of Science and Bachelor of Science degrees, as required at West Lafayette, are offered on a regular basis at the North Central campus. Plans of study for both programs are presented for students who wish to begin their academic career at Purdue University North Central and then transfer to the West Lafayette campus.

Prospective students for the industrial technology program should give serious consideration to enrolling in the industrial engineering technology (IET) program which is available at Purdue University North Central. An Associate of Science IET degree (ABET accredited) and a Bachelor of Science in organizational leadership and supervision degree with an industrial emphasis also is available. Graduates with these majors have been extremely successful in job placement and career advancement.

Further information may be obtained by contacting the Technology / Engineering Section.

INDUSTRIAL TECHNOLOGY

West Lafayette's Department of Industrial Technology offers Associate of Science, Bachelor of Science, and Master of Science programs of study. All have a technological base and are designed to prepare graduates for entrance into a wide range of positions. The Associate of Science in trade and technical teaching is a field-based, external degree program that provides in-service teacher education to people already employed as teachers of trade and technical subjects. Students pursuing a bachelor's degree may elect to major in industrial technology, industrial technology education, or vocational industrial teaching. Each student's program will be based on the major the student has selected and will be tailored through electives to meet individual needs.

BACHELOR OF SCIENCE DEGREE OPTION AND INDUSTRIAL DISTRIBUTION OPTION

The Purdue University North Central Technology / Engineering Section offers a four-semester plan of study that will transfer to West Lafayette and apply towards associate or bachelor's degrees in industrial technology.

The industrial technology bachelor's degree option is an interdisciplinary program designed to prepare a broadly educated generalist in industry and technology, rather than a specialist in a specific technology. Students may, however, develop areas of concentration of their own design through the choices of electives. In addition to a multifaceted technical education, all graduates are required to have a solid general education background in the humanities, social and behavioral sciences, and the life and physical sciences.

The industrial distribution option is designed for students seeking a career in wholesale, retail, or industrial distribution. Students pursuing this option will continue their studies in accounting, technical sales, warehouse management, inventory control and financial transactions in distribution.

GENERAL PLAN OF STUDY

FRESHMAN YEAR

First Semester	Second Semester
(3) CPT 107 (Computer Literacy)	(3) MA 154 (Algebra and Trigonometry II)
(3) ENGL 101 (English Composition I)	(3) COM 114 (Fundamentals of Speech Communication)
(3) IET 104 (Industrial Organization)	(3) ENGL 102 (English Composition II)
(3) MA 153 (Algebra and Trigonometry I)	(3) TG 110 (Technical Graphics Communications)
(3) MET 141 (Materials I)	(3) OLS 252 (Human Behavior in Organizations)
(15)	(15)

SOPHOMORE YEAR

Third Semester	Fourth Semester
(3) MA 223 (Introductory Analysis I)	(3) IET 250 (Fundamentals of Production Cost Analysis)
(3) BCM 230 (Mechanical and Electrical Systems)	(3) IET 204 (Techniques of Maintaining Quality)
(3) CHM 111 (General Chemistry)	(3) MET 230 (Fluid Power)
(3) EET 214 (Electricity Fundamentals)	(4) PHYS 218 (General Physics I) **or** PHYS 220 General Physics I)
(3) MET 242 (Manufacturing Processes II)	(3) OLS 331 (Occupational Safety and Health)
(3) TG 200 (Survey of Computer-Aided Drafting & Design)	
(18)	(16)

BACHELOR OF SCIENCE DEGREE PROGRAMS IN INDUSTRIAL EDUCATION

INDUSTRIAL TECHNOLOGY TEACHING OPTION

The Purdue University North Central Technology / Engineering Section offers a four-semester plan of study that will transfer to West Lafayette and apply towards a Bachelor of Science degree in industrial technology teaching. Students study a broad core program of general education subjects essential for all teachers. They develop technical competencies that will enable them to present effective instruction covering a broad range of industrial tools, materials and processes. They also complete a sequence of professional education courses, including student teaching. Industrial technology teacher education at Purdue University also offers the individual student an opportunity to acquire a degree of specialization in one or more of the technical subject areas.

GENERAL PLAN OF STUDY

FRESHMAN YEAR

First Semester	Second Semester
(3) CPT 107 (Computer Literacy)	(3) IET 104 (Industrial Organization)
(3) ENGL 101 (English Composition I)	(3) ENGL 102 (English Composition II)
(3) MA 153 (Algebra and Trigonometry I)	(3) MA 154 (Algebra and Trigonometry II)
(3) TG 110 (Technical Graphics Communications)	(3) BCM 235 (Construction Materials and Systems)
(3) MET 141 (Materials I)	(3) TG 200 (Survey of Computer-Aided Drafting & Design)
(15)	(15)

SOPHOMORE YEAR

Third Semester	Fourth Semester
(3) BCM 230 (Mechanical and Electrical Systems)	(3) EDPS 230 (Educational Psychology)
(3) COM 114 (Fundamentals of Speech Communication)	(3) EET 214 (Electricity Fundamentals)
(3) ECON 210 (Principles of Economics)	(3) PSY 120 (Elementary Psychology)
(3) MET 242 (Manufacturing Processes II)	(4) PHYS 218 (General Physics I) **or** PHYS 220 (General Physics I)
(3) CHM 111 (General Chemistry)	(3) OLS 331 (Occupational Safety and Health)
(15)	(16)

VOCATIONAL-INDUSTRIAL TEACHING OPTION

The Purdue University North Central Technology/Engineering Section also offers a two-semester plan of study that will transfer to West Lafayette and apply toward a Bachelor of Science degree in industrial technology vocational-industrial teaching The curriculum is a part of the total Indiana program of vocational education. Vocational-industrial teachers must be occupationally competent in one of many skilled and technical crafts found in industry in the United States. In order to qualify for the vocational teaching license, the student must have completed at least three years of work above the learner level in a craft, skilled trade, or some other type of industrial occupation, plus the general and professional educational courses specified by the Teacher Training and Licensing Commission of the State Board of Education. The plan of study, when completed, qualifies the student for a provisional trade and industrial education teacher license.

GENERAL PLAN OF STUDY

FRESHMAN YEAR

First Semester	Second Semester
(3) ENGL 101 (English Composition I)	(3) COM 114 (Fundamentals of Speech Communication)
(3) MA 153 (Algebra and Trigonometry I)	(3) CPT 107 (Computer Literacy)
(3) PSY 120 (Elementary Psychology)	(3) ENGL 102 (English Composition II)
(3) IET 104 (Industrial Organization))	(3) EDPS 230 (Educational Psychology)
(3) CHM 111 (General Chemistry)	(3) MA 154 (Algebra and Trigonometry II)
	(3) IET 204 (Techniques of Maintaining Quality)
(15)	(18)

GRADUATE STUDY IN INDUSTRIAL TECHNOLOGY

The Department of Industrial Technology at West Lafayette provides instruction leading to the Master of Science (M.S.) degree. Special programs of graduate study may be designed for people who do not have an advanced degree objective but are concerned about improving their professional qualifications or meeting advanced certification requirements. Programs are currently available that meet the certification requirements for industrial cooperative training coordinators and for supervisors of trade and industrial education.

Admission to the Graduate School may be granted to graduates of Purdue University or of any other accredited institution. People accepted to do advanced study in industrial technology must present adequate undergraduate preparation and experience to make graduate study a profitable undertaking.

Those interested in specific information about advance work in industrial technology may contact the Department of Industrial Technology, School of Technology, Knoy Hall, or the Dean of the Graduate School, Young Graduate House, both in West Lafayette.

TECHNICAL GRAPHICS

The Purdue University North Central Technology / Engineering Section offers a three-semester plan of study that will transfer to West Lafayette and apply towards the associate or / and bachelor's degree in technical graphics in the School of Technology. Technical graphics is an important form of communication for scientists, engineers, technologists, and technicians. Each technical profession uses graphics in specific ways to explore its technology, to design solutions to technical problems, to document its products and services and to conduct marketing worldwide.

The Associate of Science program is designed to prepare students for employment as graphics technicians. Graduates may prepare detail, working, or pictorial drawings: summarize data in charts and graphs; complete diagrams and schematics designed by an engineer: and apply standard graphic practices to technical documentation. A graphics technician can expect employment in manufacturing, service and information industries as a draftsperson, illustrator and / or technical artist.

At the end of the associate degree program, students have the option of joining the work force or applying for admission to the Bachelor of Science degree program. Graduates of this program may produce technical graphics as technicians; plan and supervise technical publications; evaluate graphics equipment requirements and plan for purchase and installation; operate sophisticated computer-aided graphics, plotting, typesetting, or reprographic equipment; and supervise the training and retraining of graphics technicians.

A graphics technologist can expect to work in graphic services departments of major corporations where engineering documentation is produced, as a sales representative for graphic equipment manufacturers, as a technical graphics practitioner or consultant, as a coordinator of a technical services department in industry, and in government or education.

GENERAL PLAN OF STUDY

FRESHMAN YEAR

First Semester

(3) TG 110 (Technical Graphics Communications)
(3) MA 153 (Algebra and Trigonometry I)
(3) MET 141 (Materials I)
(3) COM 114 (Fundamentals of Speech Communication)
(3) ENGL 101 (English Composition I)
(3) OLS 252 (Human Behavior in Organizations)
(18)

Second Semester

(3) TG 200 (Survey of Computer-Aided Drafting and Design)
(3) MA 154 (Algebra & Trigonometry II))
(3) IET 104 (Industrial Organization)
(3) ECON 210 (Principles of Economics)
(3) OLS 274 (Applied Leadership)
(3) MET 102 (Production Design and Specifications)
(18)

SOPHOMORE YEAR

Third Semester

(3) COM 315 (Speech Communication of Technical Information) **or**
COM 415 (Discussion of Technical Problems)
(3) GNT 220 (Technical Report Writing)
(3) MET 302 (CAD in the Enterprise)
(3) STAT 301 (Elementary Statistical Methods)
(4) PHYS 218 (General Physics I) **or**
PHYS 220 (General Physics I)
(3) Free Elective
(19)

GRADUATE STUDY

Limited graduate work is available at Purdue University North Central. Courses offered are primarily in elementary education. Occasionally courses are offered in secondary education or other professional areas. For further information regarding these programs contact the graduate education advisor at Purdue University North Central.

MASTER OF SCIENCE IN ELEMENTARY EDUCATION

The Graduate School of Purdue University offers a 30-credit, non-thesis, program of study leading to the Master of Science degree in elementary education. All courses leading to the degree may be taken at the North Central campus. The program is designed to further the education of those who posses the baccalaureate in elementary education. However, applicants who do not meet this criterion but do meet general Graduate School admission standards may be granted conditional acceptance with full admission awarded when deficiencies have been removed.

A student with an undergraduate gradepoint average of less than 3.0 is admitted conditionally pending initial success in the master's program. Additionally, students who did not receive a grade of B or better in their undergraduate English composition courses or who do not receive a score of 600 or higher in Verbal Aptitude on the Graduate Record Exam (GRE) must pass the University's English Proficiency Exam. A student who has made application for admission may take up to 12 credit hours while admission is pending. Additionally, up to 15 semester hours of graduate credit taken at another accredited college or university may be applied toward the degree within certain limitations.

Individuals who are considering enrollment in the master's program are encouraged to contact the Education Section for an appointment with the graduate program advisor.

TRANSFER OF CREDIT

As many as 15 hours of graduate credit earned at other universities may be applied toward this advanced degree at the discretion of the department.

LICENSE RENEWAL

Teachers who are required to take college credit to renew their teaching certificate may also take courses at Purdue University North Central. They are encouraged to contact the Graduate Program Advisor in the Education Section for details.

GENERAL PLAN OF STUDY

(Applies to all students whose effective date of admission is after Spring Semester 1995)

Once accepted for admission, the student selects an advisory committee chairperson. Together they select two other faculty for the committee. The student, in concert with the committee members, formulates the student's individual plan of study. Note: The Graduate School conducts ongoing assessment of its admission standards, course offerings, and graduation requirements which may change while this catalog is in print.

FOUNDATIONS BLOCK (9 credits)

The student will elect one course from each of the three following areas:

A. Humanistic Education:

EDFA	500	(History and Philosophy of Education)
EDFA	503	(The Constitution and American Education) *Calumet only*
SOC	570	(Sociology of Education)
EDPS	500	(Human Relations in Group Counseling)
EDCI	585	(Multicultural Education)

B. Behavioral Education:

EDPS	530	(Advanced Educational Psychology)
EDPS	535	(Personal-Social Dynamics in the Classroom)
EDPS	567	(Teaching of Exceptional Children)
PSY	502	(Human Development) CDFS 502
PSY	552	(Development in Adolescence)
PSY	651	(Development in Infancy and Childhood)

C. Research in Education:

EDPS	531	(Introduction to Measurement and Evaluation)
EDPS	532	(Measuring Educational Achievement)
EDPS	533	(Introduction to Educational Research I: Methodology)
PSY	505	(Mental Measurement)

ELEMENTARY CORE BLOCK (6 credits)

The student will elect two of the following courses:

EDCI	607	(Implications of Research and Theory for Problems in Elementary Schools)
EDCI	608	(Individualizing Instruction in the Elementary and Secondary School)
EDCI	681	(Elementary School Curriculum)

TEACHING METHODS BLOCK (15 credits)

The student will select one advanced methods course from each of the following areas:

A. Literacy and Language Education

EDCI	500	(Foundations of Literacy)
EDCI	504	(Children's Literature)
EDCI	602	(Language Arts in the Elementary School)
EDCI	603	(Reading in the Elementary School) *North Central Campus only*

B. Science Education

EDCI 506 / FOR 564		(Environmental Education)
EDCI	605	(Science in the Elementary School)
EDCI	609	(Earth Science Teaching in the Elementary and Secondary School)

C. Social Studies Education

EDCI	604	(Social Studies in the Elementary School)
HIST	560	(Economics History of the United States)

D. Mathematics Education

EDCI	606	(Mathematics in the Elementary School)
MA	547	(Analysis for Teachers I)

E. Select one course from one of the following areas:

1. Educational Technology

EDCI	508	(Computer Applications in Reading and Writing)
EDCI	560	(Educational Technology for Teaching and Learning)
EDCI	561	(Computer-Assisted Instruction)
EDCI	570	(Delivery Systems for Education and Training)
EDCI	571	(Production of Instructional Materials)

2. Multicultural Education

EDCI	585	(Multicultural Education)
SOC	514	(Racial and Cultural Minorities)
SOC	515	(Black Americans)
GRAD	688T	(Feminist Theory and Methodology)

3. Special Needs Education

EDPS	540	(Gifted, Creative and Talented Children)
EDPS	542	(Curriculum and Program Development in Gifted Education)
EDPS	567	(Teaching of Exceptional Children)
EDPS	563	(Identification, Evaluation, and Assessment of Exceptional Individuals)
EDPS	565M	(Intervention Strategies and Research)

DESCRIPTION OF COURSES

Key to Use

The courses listed in the following pages will, for the most part, be offered during the academic years covered by this catalog. In most cases, the session in which a course will be offered is indicated as follows:

Sem. 1, 2, or 3 (summer session).
These courses are offered every year and every semester.
Sem. 1E., Sem.1O., Sem. 2E., Sem. 2O.
Sem. 1E. indicates that the course is offered in the first semester of even numbered calendar years. Sem. 2O indicates that the course is offered in the second semester of odd numbered calendar years.

In some cases, it is impossible to specify the sessions in which a course will be offered. These courses have been marked "OC" which indicates that the course is offered only occasionally. Information on the scheduling of courses marked OC can be obtained from the chairperson of the section which administers the course.

Description of course content is preceded by information to be interpreted as follows: first, the official number of the course; second, its special title; third, the semester(s) in which it is offered; fourth, the number of hours a week of recitation, laboratory, or practice, and credit hours; and fifth, the prerequisites required. Under "Physics," for example, the following:

PHYS 220 General Physics
Sem. 1. Class 3, Lab. 2, cr. 4. Prerequisites: MA 153, 154 or equivalent.

Indicates that the course, PHYS 220, in General Physics, is offered during the fall semester for three recitation and two laboratory hours a week, and gives credit for four semester hours. It also states that MA 153, MA 154 or an equivalent course must be taken prior to PHYS 220.

The course numbers indicate the following:

1-99	Pre-college and development courses
100-299	Lower-division courses normally scheduled for freshmen and sophomores
300-499	Upper-division courses normally scheduled for juniors and seniors
500-599	Dual-level courses that may be scheduled by juniors and seniors, and by graduate students for graduate credit

Descriptions of graduate-level courses **(600 series)** not listed in this bulletin, can be found in The Graduate School bulletin. In certain cases, an undergraduate student may take a 600-level course.

When a course number immediately follows a course title, that number designates an equivalent course offered by another department.

ACCOUNTING

(See General Business)

ARCHITECTURAL TECHNOLOGY

ART 150 Architectural Construction I

Sem. 1 or 2. Lab. 6, cr. 3 with outside assignments required. Prerequisite: TG 110, Corequisite: TG200.

A study of wood frame construction through a semester project requiring planning and working drawings. Field trips may be included.

ART 221 Architectural Presentation

Sem. 2. Lab. 6, cr. 2. Prerequisite: TG 110 and TG 200.

Introduction to techniques of presentation drawings and models of buildings. Exercises in freehand sketching, perspective drawing, shades and shadows, and use of color in renderings. Survey of the application of color in buildings, construction, and purpose of various types of architectural models.

ART 222 Architectural Construction II

Sem. 2. Lab. 6, cr. 3. Prerequisite: ART 150 and TG 200.

Preparation of preliminary and working drawings for an intermediate-size commercial or institutional building.

ART 299 Architectural Technology

Sem 1, 2 and 3. cr. 1-4.

Hours and subject matter to be arranged with staff. Course may be repeated for up to nine hours of credit.

ART 299P Plans and Specifications

Sem. 1. Class 2, Lab. 3, cr. 3.

Reading and interpretation of contract documents for construction. Emphasis on plans and specifications for a variety of structures.

ART AND DESIGN

A&D 113 Basic Drawing

Sem. 1 and 2. Class 1, Studio 5, cr. 3.

An introduction to drawing and sketching as a means of communication of ideas.

A&D 201 Art for Elementary School Teachers

Sem. 1 and 2. Class 3, Studio 3, cr. 3. Prerequisite: Admission to the Teacher Education Program.

Art theory and experiences, curriculum theory, and materials preparatory to instruction of elementary school.

A&D 255 Art Appreciation

Sem. 1 and 2. Class 2, cr. 3. Not open to freshmen.

Understanding and appreciation of the problems overcome by mankind in the origins and growth of art.

ASTRONOMY

ASTR 263 Descriptive Astronomy: The Solar System

Sem.1 and 3. Class 3, cr. 3. Not available to students with credit in ASTR 363.

A descriptive nonmathematical course in astronomy intended for nonphysics majors. Topics include: description of the sky; historical development of astronomy, motion of the sun and the moon; solar and lunar eclipses; the seasons and the calendar; the sun and the planetary system; comets, meteoroids, and asteroids. Includes required observing sessions.

ASTR 264 Descriptive Astronomy: Stars and Galaxies

Sem. 2. Class 3, cr. 3. Not available to students with credit in ASTR 364 . Prerequisite: ASTR 263 or consent of the instructor.

A descriptive nonmathematical course in astronomy intended for nonphysics majors. Topics include: properties of stars; stellar birth and death; the Hertzsprung-Russel diagram; main sequence stars; binary systems; stellar clusters; red giants and white dwarfs, nova and supernova; neutron stars and black holes; galaxies and the cosmological red shift. Includes required observing sessions.

BIOLOGICAL SCIENCES

BIOL 121 Biology I: Diversity, Ecology and Behavior

Sem. 1. Class 2, cr. 2.

Assumed Ability: Strong background in high school science and mathematics. Creates a framework for ordering biology by examining the unity and diversity of life on earth with an emphasis on ecology, genetics, population biology, evolution and behavior.

BIOL 122 Laboratory in Biology I: Diversity, Ecology and Behavior

Sem. 1. Lab. 4, cr. 2. Prerequisite or corequisite: BIOL 121.

Laboratory exercises focusing on the diversity of organisms on earth, the evolutionary mechanisms by which they arose; their ecology, behavior, and genetics.

BIOL 131 Biology II: Development, Structure, and Function of Organisms

Sem. 2. Class 2, cr. 2. Prerequisites: BIOL 121/122 preferred or equivalent.

Principles of development of plants and animals and the relationship between the structure and function of selected systems of these organisms.

BIOL 132 Laboratory in Biology II: Development, Structure, and Function of Organisms

Sem. 2. Lab. 4, cr. 2. Prerequisite or corequisite: BIOL 131.

Descriptive and experimental aspects of early plant and animal development, gross anatomy, histology, and physiology of selected plant and animal systems.

BIOL 195 Special Assignments

Sem. 1 and 2. Cr. Variable. Prerequisite: consent of instructor. May be repeated for credit.

Reading, discussions, written reports, seminar presentations, and field or laboratory research work provided for enrichment in special areas of the biological sciences.

BIOL 203 Human Anatomy and Physiology

Sem. 1. Class 2, Lab. 2, cr. 3. Prerequisite: 1 year high school biology and/or chemistry or equivalent.

A survey of normal structure and function of the human organism. The human is treated as an open system with the capacity to transport material, transform energy, and maintain a homeostatic state. The capacities and limitations of the human to cope with changes in the environment are emphasized. All major systems of the human body and their functions are examined in relation to the living organism. The course includes laboratory exercises emphasizing the essentials of human anatomy and physiology.

BIOL 204 Human Anatomy and Physiology

Sem. 2. Class 2, Lab.2, cr. 3. Prerequisite: BIOL 203.

Continuation of BIOL 203.

BIOL 205 Biology for Elementary School Teachers

Sem. 1. Class 2, Lab. 2, cr. 3. Prerequisite: 1 year high school biology and/or chemistry or equivalent. Does not satisfy requirements for School of Science majors.

Unifying concepts of biology taught with materials appropriate for future elementary school teachers.

BIOL 206 Biology for Elementary School Teachers

Sem. 2. Class 2, Lab. 2, cr. 3. Prerequisite: BIOL 205. Does not satisfy requirements for School of Science majors.

Continuation of BIOL 205.

BIOL 211 The Social Impact of the Biological Sciences

Sem. 1. Class 2, Dem. and Disc. 2, cr. 3. Does not satisfy requirements for School of Science majors.

An introduction to basic concepts, experimentation, and information found within the biological sciences. Emphasis is placed upon the role of biology within the social framework. Relationships between this discipline and common social problems are explored, including those which deal with conservation ecology.

BIOL 212 The Social Impact of the Biological Sciences

Sem. 2. Class 2, Dem. and Disc. 2, cr. 3. Does not satisfy requirements for School of Science majors.

A continuation of BIOL 211. (It is useful but not essential for this course to be preceded by BIOL 211).

BIOL 213 Human Anatomy and Physiology

Sem. 1. Class 3, Lab. 2, cr. 4. Prerequisite: 1 year high school biology and/or chemistry or equivalent.

An introduction to human anatomy and physiology. Topics include the basic structural and functional organization of the human body, cellular anatomy and physiology, body tissues, the integument, and the skeletal, muscular and nervous systems. Lecture material is reinforced and expanded upon during laboratory studies of gross anatomy histology and physiology.

BIOL 214 Human Anatomy and Physiology

Sem. 2. Class 3, Lab 2, cr. 4. Prerequisite: BIOL 213.

A continuation of BIOL 213. Topics include: structure and function of the endocrine, cardiovascular, lymphatic, immune, respiratory, digestive, urinary and reproductive systems; basic hematology, field and electrolyte balance and acid-base balance. Lecture material is reinforced and expanded upon during laboratory studies of gross anatomy, histology, and physiology.

BIOL 221 Introduction to Microbiology

Sem. 1 and 2. Class 3, Lab. 2, cr. 4. Prerequisites: CHM 119 or equivalent and BIOL 203, BIOL 213 or BIOL 121/122 or equivalent.

The isolation, growth, structure, function, heredity, identification, classification, and ecology of microorganisms; their role in nature and significance to man.

BIOL 231 Biology III: Cell Structure and Function

Sem. 1. Class 3, cr. 3. Prerequisites: BIOL 121/122 and BIOL 131/132 or equivalent.

An introduction to modern cell biology through an examination of the physical and chemical properties that lead to an understanding of the molecular basis for cell function.

BIOL 232 Laboratory in Biology III: Cell Structure and Function

Sem. 1. Lab. 4, cr. 2. Corequisite: BIOL 231.

Laboratory exercises designed to illustrate the properties, functions, and growth of prokaryotic and eukaryotic cells and to introduce the student to modern experimental methods used to study cells and their separated components.

BIOL 241 Biology IV: Genetics and Molecular Biology

Sem. 2. Class 3, cr. 3. Prerequisites: BIOL 121/122 and BIOL 131/132 or equivalent.

Elementary genetics emphasizing the classical genetic principles of segregation, linkage, chromosome abnormalities, gene action, immunogenetics, blood groups, and population genetics. Topics in molecular biology include DNA structure, replication, mutation, repair, transcription, translation, and regulation.

BIOL 242 Laboratory in Biology IV: Genetics and Molecular Biology

Sem. 2. Lab. 4, cr. 2. Corequisite: BIOL 241.

Laboratory experiments in classical, molecular, and bacterial genetics will be offered. Exercises will be performed in the areas of human and population genetics.

BIOL 295 Special Assignments

Sem. 1, 2 and 3. Cr. variable. Prerequisite: consent of instructor. May be repeated for credit.

Reading, discussions, written reports, or laboratory research work selected for enrichment in special areas of the biological sciences.

BIOL 322 Laboratory in Microbiology

Sem. 1 and 2. Class 3, cr. 3. Prerequisite: CHM 111/112 or CHM 115/116 and BIOL 121/122, BIOL 131/132 or equivalent. ***This course is restricted to students majoring in the biological sciences or health sciences.***

An examination of the microbial world – acellular and cellular. Classification, structure, function, growth, isolation, ecology, immunology, their role in nature, and their impact on human health.

BIOL 323 Laboratory in Microbiology

Sem. 1 and 2. Lab 4, cr. 2. Corequisite: BIOL 322.

An introduction to microbiological applications – identification, isolation, and growth of microorganisms, including modern methods for identifying pathogen microbes.

BIOL 395 Special Assignments
Sem. 1, 2 and 3. Cr. variable. Prerequisite: consent of instructor. May be repeated for credit.
Reading, discussions, written reports, or laboratory (research) work provided for enrichment in special areas of the biological sciences.

BIOL 411 Laboratory in Molecular Biology
Sem. 2O. Lab 6, cr. 3. Prerequisite: BIOL 242. Corequisite: BIOL 415.
Introduction to techniques useful for the molecular characterization of proteins and nucleic acids. Nucleic acids will be isolated from plant and animal tissue and PCR amplification of DNAs will be carried out. Student will learn to design primers for amplification of specific gene loci. Protocols will be learned in the context of an ongoing project that uses molecular methods to follow the inheritance of genetic polymorphisms in plants.

BIOL 415 Introduction to Molecular Biology
Sem. 2O. Class 3, cr. 3. Prerequisites: BIOL 231, BIOL 241, CHM 255 or equivalent.
An introduction to modern molecular biology techniques.

BIOL 455 Animal Physiology
Sem. 2E. Class 3, cr. 3. Prerequisite: BIOL 231 and CHM 256 or equivalent courses. Corequisite: PHYS 220.
Analysis of selected vertebrate and invertebrate physiological systems as an introduction to animal physiology. Neural and hormonal mechanisms of cellular communication and the roles played by these mechanisms in the action of specialized tissues; systemic and comparative physiology of respiration circulation, muscle contraction, osmoregulation, and sensory transduction. Emphasis on relationships between system function and underlying cellular mechanisms.

BIOL 456 Laboratory in Animal Physiology
Sem. 2E. Lab 5, cr. 2. Corequisite: BIOL 455.
Laboratory experiments are designed to illustrate the principles of systems physiology. The course emphasizes the basic principles of physiology, the laboratory methods to study these principles, and the quantitative analysis of data.

BIOL 495 Special Assignments
Sem. 1, 2 and 3. Cr. variable. Prerequisite: consent of instructor. May be repeated for credit.
Reading, discussions, written reports, or laboratory research work selected for enrichment in special areas of the biological sciences.

BIOL 497 Biology Honors Seminar
Sem. OC. Class 2, cr. 1. May be repeated for credit.
Required of all students participating in honors research. Discussions and presentations of research including seminars by those students who are completing their honors research thesis.

BIOL 499 Biology Honors Thesis Research
Sem. 1, 2 and 3. cr. 1-4. Prerequisite: submission of honors research petition and consent of faculty sponsor and Honors Committee. May be repeated for credit.
Research under the guidance of a scientist.

DUAL LEVEL
Undergraduate-Graduate Courses

BIOL 519 Molecular Biology: Nucleic Acids
Sem. 1. Class 2, cr. 2. Prerequisite: CHM 255, BIOL 241, or equivalent.
Molecular aspects and biological functions of nucleic acids.

BIOL 529 Bacterial Physiology
Sem. 1. Class 3, cr. 3. Prerequisites: BIOL 322, BIOL 323, and either CHM 533 or BCHM 561. (BCHM 562 is recommended.)
A detailed consideration of the central metabolic routes, their roles in generation of energy and key intermediates, and the conversion of those intermediates to small molecule building blocks. Regulatory mechanisms will be stressed.

BIOL 531 Parasitology
Sem. 3O. Class 2, Lab. 4, cr. 4. Prerequisites: BIOL 131/132 or equivalent.
Arthropod, protozoan, and helminth parasites; their morphology, life histories, host-parasite relationships, and control.

BIOL 533 Medical Microbiology
Sem. 1. Class 3, cr. 3. Prerequisite: BIOL 322 and 323 or 221.
Host-parasite relationships. Immunology. Bacteria, viruses and other microbes associated with infectious diseases.

BIOL 534 Laboratory in Medical Microbiology
Sem. 1. Lab 4, cr. 2. Prerequisite or corequisite: BIOL 533.
Isolation, identification, and properties of microorganisms associated with infectious diseases.

BIOL 537 Immunobiology
Sem. 2E. Class 3, cr. 3. Prerequisite: consent of instructor.
Readings and discussion in the structural, cellular, and genetic basis of the immune response.

BIOL537L Laboratory in Immunobiology
Sem. 2E, Lab 4, cr. 2. Corequisite: BIOL 537.
An introduction to cellular and molecular immunobiological techniques. Topics covered include culture of lymphoid cells, purification and characterization of antibody molecules, isolation of DNA from lymphoid tissue, and PCR amplification of gene loci associated with the immune response.

BIOL 566 Developmental Biology
Sem. 1O. Class 3, cr. 3. Prerequisite: Biology/Chemistry core and consent of instructor.
Principles of development with emphasis on concepts and experimental evidence for underlying mechanisms, including molecular, cellular, and supracellular approaches.

BIOL 567 Laboratory in Developmental Biology
Sem. 1O. Lab. 2, cr. 1 . Corequisite: BIOL 566.
Descriptive and experimental study of the development of animals. The laboratories do not necessarily follow lecture material.

BIOL 585 Ecology
Sem. 3E. Class 2, Lab 2, cr. 3. Prerequisite: Biology core or consent of instructor; statistics and/or calculus desirable.
Ecological processes and dynamics of populations, communities, and ecosystems; physical, physiological, behavioral, and population genetic factors regulating population and community structure; case studies, field studies, and simulation models of life history attributes, competition, predation, parasitism and mutualism.

BIOCHEMISTRY

BCHM 561 General Biochemistry I
Sem. 1. Class 3, cr. 2. Prerequisite: CHM 256 or CHM 262 or equivalent, or consent of instructor.
Protein structure and function, properties of enzymes in aqueous solution, mechanisms of enzyme action, basic concepts of metabolism, sugar and fatty acid metabolism, introduction to biological membranes.

BCHM 562 General Biochemistry II
Sem. 2. Class 3, cr. 3. Prerequisite: BCHM 561 or equivalent.
Amino acid metabolism, photosynthesis, biosynthesis of membrane lipids and steroids, biosynthesis of nucleotides, structure and function of nucleic acids, protein synthesis, and control of gene expression.

BOTANY/PLANT PATHOLOGY

BTNY 555 Aquatic Botany
Sem. 1E. Class 2, Lab 3, cr. 3. Prerequisite: BIOL 121/122 and consent of instructor.
The study of algae and higher plants of the aquatic environment, with emphasis on identification, morphology, ecology, role as pollutants, physiology, and control.

BRIDGE PROGRAM

Developmental courses are offered for students who need to upgrade their abilities in certain areas or to remediate an academic deficiency, or who wish to better prepare themselves for future work. ***None of the courses listed in this section count toward a degree from Purdue University.***

GNC 063 Basic Mathematics
Sem. 1 and 2. Class 3, Lab. 1, cr. 3 or Class 3, cr. 3. Does not count towards graduation.
Review of basic mathematical concepts, with emphasis on applications (word problems) and on transition to algebra. Mastery learning approach (pass/not pass). Calculators used.

GNC 064 Fundamentals of Algebra
Sem. 1 and 2. Class 3, Lab. 2, cr. 3. Prerequisite: GNC 063 or equivalent. Does not count towards graduation.
Introduction to algebra concepts and skills, including polynomial operations, linear equations, quadratic equations, graphing, and systems of linear equations. Emphasis on applications as well as structure. Mastery learning approach (pass/not pass). Calculators used.

GNC 065 Plane Geometry
Sem. 1, 2, and 3. Class 3, cr. 3. Prerequisite: GNC 064 or equivalent. Does not count towards graduation.
Introduction to fundamental concepts of geometry, including angles, polygons, and circles, with emphasis on problem solving. Calculators used. This course satisfies the one unit of geometry required for admission, but does not count toward graduation.

GNC 070 Review of Basic English
Sem. 1 or 2. Class 3, Lab. 2, cr. 3. Does not count towards graduation.
A review of the fundamental elements of the sentence. Basic grammar, punctuation, diction, and spelling as they pertain to written sentences are areas of concentration. Workbook exercises, including sentence combining, and quizzes are regular components of the course. By the end of the semester students are asked to write individual coherent paragraphs. (Offered only on a pass/not pass basis.)

GNC 071 Reading Enhancement
Sem. 1 and 2. Class 2, Lab. 3, cr. 3. Does not count towards graduation.
Designed to help the student improve the ability to get meaning from written material. Comprehension, concentration, critical reading, vocabulary building and reading speed are addressed.

GNC 088 Fundamentals of Science
Sem. 1, 2 or 3. Class 2, Lab. 3, cr. 3. For students who need to enhance their background in laboratory sciences. Prerequisite or corequisite: GNC 064 or equivalent. Does not count towards graduation.
Introduction to basic concepts of science, with emphasis on development of analytical reasoning and laboratory skills needed for success in college level science courses. Topics covered include basic laboratory procedures, study skills appropriate to science, vocabulary, problem solving, and fundamental concepts of chemistry and biology.

GNC 100 Study Skills
Sem. 1 and 2. Class 3, cr. 3. Does not count towards graduation.
Procedures and practices for the development of good study habits. Includes techniques for better listening, notetaking, textbook reading, time management, and writing themes.

BUILDING CONSTRUCTION MANAGEMENT

BCM 100 Introduction to Construction
Sem. 1. Class 2, cr. 2.
A survey of the construction industry. Includes the overall construction process from initial concept through start-up of the complete facility, career opportunities in the construction industry, and an introduction to the materials and systems used in construction with an emphasis on vocabulary building.

BCM 112 Construction Surveying Fundamentals
Sem. OC. Class 2, Lab. 3, cr. 3. Prerequisite: MA 151 or MA 153 and MA 154 or equivalent.
Introduction to basic surveying operations. Development of surveying skills necessary to measure distances, angles,

and elevations to required accuracies. Calculation of tape corrections, bearing, coordinates, traverses, and areas. Emphasis is on instrument use and notekeeping techniques.

BCM 195 Construction Observation
Sem. OC. Lab. 2, cr. 1.
Directed observation and inspection of construction work in progress on or near campus. May be repeated twice.

BCM 212 Construction Layout
Sem. OC. Class 1, Lab. 6, cr. 3. Prerequisite: BCM 112 or consent of instructor.
Application of surveying skills relevant to the field of construction. Projects include layout of buildings, route centerlines, indirect determination of elevation and distance, referencing, establishment of grade, topographic mapping, and earthwork computations. Instruments used will include transit, theodolite, automatic level, laser, and EDM.

BCM 230 Mechanical and Electrical Systems
Sem. 1. Class 3, cr. 3.
A survey of systems for the supply and drainage of water, the heating and cooling of buildings, and the electrical power and lighting for buildings.

BCM 235 Construction Materials and Systems
Sem. 2. Class 3, cr. 3. Prerequisites: ART 299P and BCM 100. Corequisite: ART 150.
An advanced study of materials and structural systems used in buildings. The study of materials includes their properties, characteristics, design parameters and applications. A study of structures, superstructures, special structures and construction features.

BCM 270 Materials and Estimates
Sem. 1. Class 2, Lab 4, cr. 3 or Class 3, cr. 3. Prerequisite: BCM 235, MA 154 and TG 200.
A study of materials, components, manufactured products, connections, details, and assemblies related to estimating construction work. Practice in estimating quantities and listing of work items in standard quantity survey format.

BCM 300 Analysis of Construction Operations
Sem. OC. Class 2, cr. 2. Prerequisite: junior standing.
Analysis of construction operations observed during a minimum of 10 weeks of work. Prior department approval of the type of work required. A written and oral report with visual aids describing company operations, project's components and systems, job duties, and safety analysis must be presented during the following academic year to receive credit.

BCM 345 Scheduling
Sem. 2. Class 2, Lab. 2, cr. 3. Prerequisite: BCM 270 and CPT 107.
A study of the planning and control of construction projects. Time schedules for materials, labor, and equipment. Emphasis is on CPM scheduling.

BCM 350 Field Operations
Sem. OC. Class 3, cr 3.
A study of selected field operations including both equipment-intensive and labor-intensive tasks. The selection and management of equipment are emphasized.

BCM 375 Estimating II
Sem. OC. Class 2, Lab. 4, cr. 3. Prerequisites: BCM 345, BCM 350 and BCM 380.
Forecasting the costs to construct commercial building projects in accordance with project plans and specifications. Emphasis is on the costs associated with concrete, steel, and site work. Use of computer software is featured.

BCM 380 Concrete Construction
Sem. OC. Class 2, Lab. 2, cr. 3. Prerequisite: MET 211.
An overview of concrete construction, including material composition, behavior and handling of concrete, formwork, and concrete reinforcement.

BCM 400 Analysis of Construction Management
Sem. OC. cr. 3. Prerequisite: senior standing.
Analysis of construction management techniques studied during a minimum of 10 weeks of work. Prior departmental approval of the type of work is required. A written and oral report to include a

description, analysis, and evaluation of management techniques, systems, and controls must be presented during the following academic year to receive credit.

BCM 497 Special Topics on Construction
Sem. OC. Class 0-4, cr. 0-4. Hours, subject matter, and credit to be arranged by staff. (May be repeated for credit.)

BCM 499 Special Assignments
Sem. OC. Cr. 1-4. (May be repeated for credit.)
Special assignments for students who wish to undertake individual study on approved topics.

BUSINESS COURSES
(See General Business)

CHEMISTRY

CHM 103 Chemistry and Society
Sem. 2. Class 2, Lab. 3, cr. 3.
For students who think they hate chemistry! This unique course may be used for 3 hours of lab science credit for students outside the Schools of Science, Engineering, Health Science, Technology, Agriculture and Nursing. Prerequisite: 1 year high school algebra or GNC 064. The course offers a totally new approach to chemistry, using decision-making activities related to real-world societal issues that have important chemistry components (such as the hole in the ozone layer, nutrition, consumer products, energy and pollution). A main goal is the development of critical thinking, problem solving and writing skills. The laboratory portion is performed in small groups using common household chemicals. This course should be of greatest interest to students in the Schools of Education, Humanities and Liberal Arts.

CHM 111 General Chemistry
Sem. 1. Class 2, Lab. 3, cr. 3. Required of all freshmen in the Schools of Agriculture and Health Sciences who are not in CHM 115; required of students in the School of Consumer and Family Sciences in retailing, textile, RHI, and dietetics options who are not in CHM 115. Prerequisite: 2 years of high school algebra. Does not carry credit toward graduation in the School of Science.
Metric and S.I. Units; dimensional analysis; density, the atomic concept, including elements, compounds, and mixtures; the mole concept; equations and stoichiometry; atomic structure; spectra; the periodic table; chemical bonding; gases, descriptive chemistry of the common elements.

CHM 112 General Chemistry
Sem. 2. Class 2, Lab. 3, cr. 3. Prerequisite: CHM 111 or equivalent. Does not carry credit toward graduation in the School of Science.
Continuation of CHM 111. Liquids and solids; solutions; chemical kinetics; equilibrium; acids and bases; oxidation and reduction; electrochemistry; descriptive chemistry of the metals and nonmetals; introduction to organic chemistry; nuclear chemistry.

CHM 115 General Chemistry
Sem. 1. Class 3, Lab. 3, cr. 4. Required of students majoring in biology, chemistry, and physics and some students in engineering. ***Note: A diagnostic placement test must be taken by all students enrolled in CHM 115 prior to the beginning of the fall semester.*** *Prerequisites: MA 153/154 or equivalent, and 1 year high school chemistry.*
Stoichiometry; atomic structure; periodic properties; ionic and covalent bonding; molecular geometry; gases, liquids, and solids; crystal structure; thermochemistry; descriptive chemistry of metals and nonmetals.

CHM 116 General Chemistry
Sem. 2. Class 3, Lab. 3, cr. 4. Prerequisite: CHM 115 or equivalent.
A continuation of CHM 115. Solutions; quantitative equilibria in aqueous solution; introductory thermodynamics; oxidation-reduction and electrochemistry; chemical kinetics; qualitative analysis; further descriptive chemistry of metals and nonmetals.

CHM 119 General Chemistry
Sem. 1 and 2. Class 2, Lab. 3, cr. 3. Prerequisites: 1 year high school chemistry and 4 semesters of high school academic math.
A survey of general, organic, and biological chemistry. Intended primarily for

students in the nursing program, but may be taken by others with the consent of the instructor.

CHM 224 Introductory Quantitative Analysis
Sem. 2. Class 3, Lab. 4, cr. 4. Prerequisite: CHM 112 or CHM 116.
Introduction to titrimetric, gravimetric, and instrumental methods of analysis. Required of students in biology or the preprofessional program.

CHM 255 Organic Chemistry
Sem. 1. Class 3, cr. 3. Prerequisite: CHM 112 or CHM 116.
A study of aliphatic and aromatic hydrocarbons and their simple derivatives in terms of (a) structure, bonding, etc.; (b) general synthesis and reactions; and (c) a logical modern rationale for fundamental phenomena as supported by reactivity orders, orientation effects, stereochemistry, and relative rates.

CHM 225L Organic Chemistry Laboratory
Sem. 1. Lab. 3, cr. 1. Corequisite: CHM 255.
Laboratory experiments to accompany CHM 255 illustrating methods of separation and the more common techniques and methods for preparing various types of organic compounds.

CHM 256 Organic Chemistry
Sem. 2. Class 3, cr. 3. Prerequisite: CHM 255 or equivalent.
A continuation of CHM 255 with various functional groups such as the carboxyl, carbonyl, amino, etc., and including such polyfunctional natural products as carbohydrates and peptides.

CHM 256L Organic Chemistry Laboratory
Sem. 2. Lab. 3, cr. 1. Corequisite: CHM 256.
A continuation of CHM 255L, but emphasizing methods for identifying organic compounds, including simple "unknowns."

CHM 261 Organic Chemistry
Sem. 1. Class 3, cr 3. Prerequisite: CHM 116 or CHM 136. Recommended for students majoring in chemistry or chemical engineering.
A comprehensive study of the chemical principles underlying aliphatic and aromatic compounds. The syntheses and reactions of these materials are discussed. Modern theory and stereochemistry are stressed to illustrate the logic inherent in the subject matter and to demonstrate the predictability of many chemical transformations.

CHM 262 Organic Chemistry
Sem. 2 and 3. Class 3, cr. 3. Prerequisite: CHM 261.
A continuation of CHM 261, but a broader scope. The chemistry of a variety of functional groups is discussed. Theory is employed extensively to demonstrate the coherence underlying seemingly diverse transformations. Qualitative organic analysis is introduced, with particular emphasis on spectroscopic methods.

CHM 263 Organic Chemistry Laboratory
Sem. 1. Lab. 3, cr. 1. Corequisite: CHM 261.
Laboratory experiments designed to illustrate the lecture material of CHM 261. Elementary laboratory techniques essential to organic chemistry are introduced followed by the actual syntheses and purification of compounds discussed in CHM 261.

CHM 264 Organic Chemistry Laboratory
Sem. 2. Lab. 3, cr. 1. Corequisite: CHM 262.
A continuation of CHM 263 in that the experiments are designed to illustrate principles discussed in CHM 262. A major portion of the course is devoted to methods employed in organic qualitative analysis. The student is expected to identify several "unknown" compounds and mixtures.

CHM 290 Selected Topics in Chemistry for Lower-division Students
Sem. 1, 2 and 3. Cr. 1-4.

CHM 321 Analytical Chemistry I
Sem. 1. Class 3, Lab. 4, cr. 4. Prerequisite: CHM 126, CHM 136 or CHM 116, and 1 year of organic chemistry. Required of students majoring or minoring in chemistry.
Quantitative measurements on complex chemical systems that show matrix ef-

fects or require isolation of a component prior to its determination; general approaches to quantitative problems at the trace level; critical comparisons of competitive procedures with emphasis on principles of separation processes, including chromatography; recognition and evaluation of possible sources of error; approaches for optimizing conditions so as to minimize time and/or effort required to attain prescribed levels of accuracy and precision.

CHM 333 Principles of Biochemistry
Sem. 1 and 2. Class 3, cr. 3. Prerequisite: A 1 semester or a 1 year course in organic chemistry.
Structure and function of biologically important molecules. Intended for students in life sciences.

CHM 372 Physical Chemistry
Sem. 2. Class 4, cr. 4. Prerequisites: MA 224 or MA 162, PHYS 221, and CHM 255/256, CHM 321 or equivalents. Required for students minoring in chemistry.
Principles of physical chemistry with emphasis on chemical thermodynamics and kinetics. Intended primarily for students in the life sciences.

CHM 481 Environmental Chemistry
Sem. 1. Class 3, cr. 3. Prerequisite: CHM 321 or CHM 323.
Survey of chemical aspects of environmental problems and the application of chemistry to their solutions. Topics will include atmospheric pollution problems, groundwater pollution and waste disposal problems, inorganic water pollutants, and the occurrence and fate of toxic organic compounds and other substances in the environment.

CHM 490 Selected Topics in Chemistry for Upper-Division Students
Sem. 1, 2 and 3. SS. Cr. 1-4.

DUAL LEVEL
Undergraduate-Graduate Course

CHM 533 Introductory Biochemistry
Sem. 1 and 2. Class 3, cr. 3. Prerequisite: Organic Chemistry or consent of instructor.
A rigorous one-semester introduction to biochemistry.

CIVIL ENGINEERING TECHNOLOGY

CET 209 Land Surveying and Subdivision
Sem. 2. Class 1, Lab. 6, cr. 3. Prerequisites: BCM 112 and BCM 212.
Theory and practice of land surveying, subdivision, filing and recording deeds, U.S. governmental survey of public lands, laws of land surveying, descriptions and area computations for land surveys. Subdivision planning, calculations and plotting, water main layouts, storm and sanitary sewer calculations and layouts. Street plans and profiles.

CET 253 Hydraulics and Drainage
Sem. 1 or 2. Class 3, cr. 3. Prerequisites: MA 153 and MA 154.
Basic hydrostatics, Bernoulli's equation, flow in water and sewer lines, overland and ditch drainage, and culvert size determination.

CET 299 Civil Engineering Technology
Sem. OC. cr. 1-4.
Hours to be arranged with the staff. Primarily for third and fourth semester students. Subject matter to be assigned by the staff.

COMMUNICATION

COM 114 Fundamentals of Speech Communication
Sem. 1, 2 and 3. Class 3, cr. 3.
A study of communication theories as applied to speech; practical communicative experiences ranging from interpersonal communication to small group process with a focus on speaking in standard speaker-audience situations.

COM 204 Communication and Social Knowledge
Sem. 1. Class 3, cr. 3.
Introduction to the principles of communication pertinent to the study of human understanding and social knowledge. Emphasis in this course will be upon the genres of theory as practiced on current scholarship and communication disciplines.

COM 212 Approaches to the Study of Interpersonal Communication
Sem. 1 and 2. Class 3, cr. 3.
A study of basic characteristics of human verbal and non-verbal communication and the theoretical and practical implications of these characteristics for personal relationships.

COM 240 Introduction to Oral Interpretation
Sem. 2. Class 3, cr. 3. Prerequisite: COM 114.
Oral interpretation of prose, poetry, and dramatic dialogue based on careful study of meaning and emotional content.

COM 250 Mass Communication and Society
Sem. 2. Class 3, cr. 3.
A survey of the print, broadcast, and film media in terms of history and influence on society. Study topics include: mass communication history, commercialism, news media, media effects and control, media ethics, advertising and public relations.

COM 251 Introduction to the Electronic Media
Sem. OC. Class 3, cr. 3.
A study of the ways in which ideas are expressed through techniques unique to the language of radio, television, and film. Course focuses on scenes, camera and lens movement, tempo, editing concepts, montage, sound perspective, fades, segues, and other special effects prerequisite to effective communication through electronic media.

COM 252 Journalistic Writing
Sem. 1O. Class 2, Lab. 2, cr. 3. Prerequisite: COM 250.
Journalistic writing for print media. Emphasis is on style, news values, and story construction. Extensive practice in writing various types of news stories.

COM 300 Introduction to Communications Research Methods
Sem. OC. Class 3, cr. 3.
Introduction to the development and application of historical-critical and empirical research methods pertinent to communication problems. Fundamental concepts of problem identification, sampling surveys, historical sources, critical models, reliability and validity of both measurement and research design in communication research.

COM 315 Speech Communication of Technical Information
Sem. 1. Class 3, cr. 3. Prerequisite: COM 114. Open only to students enrolled in the School of Technology.
The organization and presentation of information of a practical technical nature. Emphasis is on the study, preparation, and use of audio-visual materials in oral presentations.

COM 318 Principles of Persuasion
Sem. 1 and 2. Class 3, cr. 3. Prerequisite: COM 114.
Persuasion and its effects, ranging from individual influences to societal impacts. Various perspectives and models of persuasion are examined, including classic and modern approaches. Both theoretical and pragmatic considerations are introduced.

COM 320 Small Group Discussion
Sem. 1 E. Class 3, cr. 3. Prerequisite: COM 114.
A study of group thinking and problem-solving methods; participation in and evaluation of committee and informal discussion groups. Focus on the roles, networks, and messages employed by small group communicators.

COM 324 Introduction to Organizational Communication
Sem. 2 . Class 3, cr. 3. Prerequisite: COM 114.
An introduction to fundamental concepts and basic research related to communication behavior in organizational settings.

COM 325 Interviewing: Principles and Practices
Sem. OC. Class 3, cr. 3. Prerequisite: COM 114.
Theory and practice of methods in selected interview settings: informational, employment, and persuasive. Emphasis on communication between two persons, questioning techniques, and the logical and psychological bases of interpersonal persuasion.

COM 330 Theories of Mass Communication
Sem. OC. Class 3, cr. 3.
An examination of mass communication theories and theorists. Readings and discussion of McLuhan, Lippmann, DeFleur, Lazarsfeld, Schramm, Stephenson, and other significant contributors.

COM 358 Newspaper Reporting
Sem. OC. Class 3, cr. 3. Prerequisite: COM 252.
Study of, and practice in, methods of journalistic research and presentation; preparation of in-depth newspaper stories based on student research.

COM 376 Communication and Gender
Sem. 1. Class 3, cr. 3.
Course is based on the assumption that studies of gender and communication are intertwined. Focus is on communication processes that create symbols of gender.

COM 415 Discussion of Technical Problems
Sem. 2. Class 3, cr. 3. Open only to students enrolled in the School of Technology.
Principles of speech communication related to interpersonal communication, interviewing, and group discussions on technical topics and problems; practice in using these models in situations typically encountered by the technologies.

COM 490 Internship in Communication
Sem. 1, 2 and 3 as required. Class 1-6, exper. 1-6, cr. 1-3. Prerequisite: Consent of instructor. May be repeated for a maximum of 6 credits.
Experiential, supervised training in public relations, journalism, telecommunication, oral interpretation, speech education, organizational communication, or interpersonal communication. Usually given in junior or senior year. Usually gives 2 credits per internship experience.

COM 491 Special Topics in Communication
Sem. 2 and as required. Cr. 1-3. Prerequisite: COM 114. May be repeated for a maximum of 6 credits.
Intensive study of selected topics, varying from semester to semester, from the literature or practice of communication (eg., business and professional communication). Course content will be drawn from areas not dealt with in the regular curriculum and may include such topics as business communication and human resource management.

COMPUTER SCIENCES

CS 140 Introduction to Data Processing (Visual Basic)
Sem. 1, 2, and 3. Class 3, cr. 3. Corequisite: MA 153. Not available for credit toward graduation in the School of Science or for Computer Technology majors. Intended for students who expect to use computers outside the physical sciences and engineering.
Introduction to the Visual Basic programming language and the development of event-driven programs.

CS 220 Programming I for Engineers and Scientists
Sem. 1 and 2. Class 3, cr. 3. Prerequisite: one semester of mathematics beyond MA 154.
Introduction to programming in FORTRAN. Assignment, input/output, flow of control, arrays, subroutines, and functions. Structure of computing systems. Batch and interactive computing. Sorting and searching. Simulation. Elementary numerical methods. Applications in engineering and science.

COMPUTER TECHNOLOGY

CPT 107 Computer Literacy

Sem. 1, 2 and 3. Class 3, cr. 3. Not available for credit to Computer Technology majors. Credit cannot be earned in both CPT 107 and CPT 135 for degree requirements.

A complete literacy and familiarization course. Students are familiarized with available microcomputer systems and their use. Required rudimentary application assignments appropriate to all students.

CPT 135 Personal Computing Technology and Applications

Sem. 1 and 2. Class 3, cr. 3 or Class 2, Lab. 2, cr. 3. CPT 107 is not a substitute course for credit to Computer Technology majors.

This course explores personal computer hardware, software, and problem solving. Topics include alternative personal computers and operating systems, end-user computing services, and personal computing ethics. Students solve problems through hands-on experience with applications such as word processing, spreadsheets, and presentation graphics. The course also surveys other personal productivity software such as database management, desktop publishing, drawing, and diagramming.

CPT 145 Introduction to Information Systems

Sem. 1 and 2. Class 3, cr. 3.

This course introduces the application of computers and information technology to a variety of business, industry, and government problems and requirements. Related topics include business, system and information concepts, information systems architecture, information technology, data management, networks, system development, information systems career opportunities, and information ethics.

CPT 172 Database Application Development

Sem. 2. Class 3, cr. 3 or Class 2, Lab 2, cr. 3. Prerequisite: CPT 135 or equivalent.

This course provides a strong background in SQL and introduces fundamental database and application development concepts and techniques. Topics include database management systems, database application architecture, database design and normalization, rapid application development using fourth generation database technology. Given database and application requirements, students design, construct, and test a personal computing database and associated application components.

CPT 175E Visual Programming

Sem. 1, 2, and 3. Class 3, cr. 3 or Class 2, Lab 2, cr. 3. Corequisite: MA 153. CPT majors cannot use this course.

This course introduces event-driven application development and programming using a visual programming environment. Topics include problem solving and program design; control structures; objects and events; user interface construction; documentation and program testing.

CPT 176 Information Technology and Architecture

Sem. 2. Class 3, cr. 3 or Class 2, Lab 2, cr. 3. Prerequisites: CPT 135 and CPT 145.

This course introduces information technology hardware, software, and networks as part of an overall distributed computing environment. Topics include computing platforms of all sizes, operating systems and systems software, peripheral devices and connectivity, client/server architecture, databases, and telecommunications.

CPT 188D Microcomputer Database Applications

Sem. 1. Class 3, cr. 3. Prerequisite: CPT 107 or equivalent. This course does not carry credit toward degree requirements in Computer Technology.

A study of relational databases and their applications with special emphasis on the proper techniques of database construction. Instruction will center around learning how to design databases and operate a database management system in a Windows environment. Students will build projects and develop systems for the storage, manipulation, and retrieval of large amounts of data on the personal computer. This course is designed for non-Computer Technology majors who have had a modest exposure to computers.

CPT 188S Microcomputer Spreadsheet Applications

Sem. 1 and 2. Class 3, cr. 3. Prerequisite: CPT 107 or equivalent. This course does not carry credit toward degree requirements in Computer Technology.

An expanded study of microcomputer spreadsheets. Students will learn how to properly design spreadsheets and the necessary commands to provide solutions to business-related problems. Significant time will be devoted to gain an understanding of how to develop spreadsheets that model the calculations involved in financial applications. This course is designed for non-Computer Technology majors who have had a modest exposure to computers.

CPT 188W Advanced Word Processing

Sem. 1 and 3. Class 3, cr. 3. Prerequisite: CPT 107 or equivalent. This course does not carry credit toward degree requirements in Computer Technology.

An extended study of word processing and its practical application in business and technology. A project-oriented approach will be utilized to illustrate word processing in solving specific information processing problems. Students will learn how to use word processing in a Windows environment to perform: document enhancement, merging of documents and databases, incorporation of spreadsheet tables into documents, and applying desktop publishing techniques to documents. This course is designed for non-Computer Technology majors who have had a modest exposure to computers.

CPT 230 Data Communications

Sem. 1. Class 3, cr. 3 or Class 2, Lab 2, cr. 3. Prerequisite: CPT 176.

This course explores data communications, voice communications, and both local and wide area computer networks, and their proper application to business and industry problems. Topics include vocabulary, hardware, concepts, issues, trends, and business and technical decision making for the telecommunications field.

CPT 250 Programming with Object Structures

Sem. 1. Class 3, cr. 3 or Class 2, Lab 2, cr. 3. Prerequisite: CPT 172. Prior programming experience at either the high school or college level recommended.

This course introduces visual, object-oriented application development and programming. Topics include software engineering methods, problem solving and algorithm development; control structures; object and events; user interface construction; programming correctness verification and validation; and data structures and processing. Student projects involve user interface construction, simple file/database/object searches, and updates and report generation. The programming concepts and skills learned in this course are transferable to a wide variety of contemporary programming languages.

CPT 255 Programming with Data Structures

Sem. 2. Class 3, cr. 3 or Class 2, Lab 2, cr. 3. Prerequisite: CPT 250.

This course is a continuation of CPT 250 with an emphasis on programming with various data and database structures. Topics include arrays, lists, trees, indexes, records, file structures, relational database structures, database manipulation, data access, data maintenance, and algorithm development. Given application requirements and an intermediate-sized database, students develop a variety of applications programs that use and update the multi-table database, students will develop a variety of application programs that use and update the multi-table database in a two-tier client/server architecture.

CPT 267 Introduction to C++ Language Programming for Technical or Business Applications
Sem. 1 and 2. Class 3, cr. 3 or Class 2, Lab 2, cr. 3. Prerequisite: any prior programming course or experience.
An introduction to C++ language programming for persons with prior programming experience. Course topics include data types, data flow, operators and expressions. Applications design for business, manufacturing, or technology, depending on audience.

CPT 280 Systems Analysis and Design Methods
Sem. 2. Class 3, cr. 3 or Class 2, Lab. 2, cr. 3. Prerequisites: CPT 172, CPT 176, and CPT 250.
Comprehensive introduction to systems analysis and design methods. Topics include the information system architecture, system development methodologies, project management, systems analysis, fact finding, feasibility analysis, system modeling, and system design. Student exercises and projects emphasize logical data, process, and network modeling techniques to document business requirements for information systems and applications.

CPT 285 Topics in Programming Languages
Sem. 1 or 2. Class 3, cr. 3 or Class 2, Lab 2, cr. 3. Prerequisite: dependent on course content. Offering depends on need and/or demand.
A programming course in one or more programming languages not covered in other CPT courses. Application of structure or event-driven program design, construction, debugging, testing, and documentation techniques. Topics, projects, and languages vary with course offering.

CPT 299 Computer Technology
Sem. OC. Class 0-3, Lab 0-6, cr. 1-3.
Hours and subject matter to be arranged by staff. Individual study under directed leadership of professor. Primarily for students with special aptitudes. Course may be repeated for credit up to 6 hours.

CPT 388 Topics in Programming Languages (variable title)
Sem. 1 or 2. Class 3, cr. 3 or Class 2, Lab. 2, cr. 3. Prerequisite: any prior programming course or experience. *Offering depends upon need and/or demand.*
Advanced programming topics and skills. Emphasis upon development of maintainable programs, maintenance of existing programs, test data development, module and program testing strategies, interactive programming, and other advanced professional topics. Large team programming project may be required.

CONSUMER AND FAMILY SCIENCES
(Child Development andFamily Studies)

CDFS 211 Development and Growth of Children
Sem. 3. Class 3, cr. 3. Prerequisite: 3 hours in psychology or sociology. Available for credit by examination.
Sudy of the growth and development of children from birth through adolescence. Emphasis on physical growth, emotional and social behavior, cognitive and language development within contexts of family, school, and peer groups. Focus on observational methods.

CDFS 255 Marriage and Family Relationships
Sem. 2. Class 3, cr. 3.
Provides further understanding of family relations for those unmarried, those contemplating marriage, or for those married, and for prospective marriage counselors. A functional approach to the interpersonal relationships of courtship, marriage, and family.

CDFS 432 The Family Life Cycle
Sem. 1. Class 3, cr. 3.
Focus on contemporary research and theory dealing with the development of the family throughout the life cycle. Study of crises or issues in family life that influence the life cycle (i.e., divorce, violence, dual-career parents).

DEVELOPMENTAL STUDIES
(See Bridge)

ECONOMICS

ECON 210 Principles of Economics

Sem. 1 and 2. Class 3, cr. 3. Prerequisite: MA 153.

Study of the basic economic institutions and the role they play in defining and achieving the nation's economic goals. Emphasis will be placed on the independent nature of the economic decisions on the individual and society.

ECON 251 Microeconomics

Sem. 1 or 2 and 3 OC.. Class 3, cr. 3. Prerequisite: MA 153.

Price theory and resource allocation. Emphasis is on developing a detailed understanding of the principles of microeconomic analysis and their application to understanding price and market behavior.

ECON 252 Macroeconomics

Sem. 1 or 2OC. Class 3, cr. 3. Prerequisite: MA 153.

Introduction to macroeconomic theory. The course develops a theoretical framework permitting an analysis of the forces affecting national income, employment, interest rates, and the rate of inflation. Emphasis is placed upon the role of government fiscal and monetary policy in achieving full employment and stable prices.

ECON 352 Intermediate Macroeconomics

Sem. OC. Class 3, cr. 3. Prerequisites: ECON 251 and ECON 252. Must have current 2.75 GPA or consent of instructor.

Continuation of ECON 252. A more rigorous, general equilibrium treatment of macroeconomic theory with emphasis on the components of the model: determinants of consumption, investment, net exports and foreign exchange rates, the level of unemployment, inflation and the long-run rate of economic growth.

ECON 370 International Trade

Sem. OC. Class 3, cr. 3. Prerequisite: ECON 252 or consent of instructor.

Aspects of international economic behavior of households, firms, and national governments. Develops and uses tools of economic theory to discuss the benefits and costs of international economic interdependence and the implications of increasing international linkages of households and firms on the role of national governments.

ECON 380 Money and Banking

Sem. OC. Class 3, cr. 3. Prerequisite: ECON 251 and ECON 252 or ECON 210 and ECON 252.

The course analyzes the economics of money, monetary systems, and financial intermediaries in modern industrial economics. Topics considered can include the origin of money and the banking industry, the properties of various monetary systems, the operation of central banks, the regulation of financial intermediaries, and the effects of various monetary policies.

EDUCATION

Courses marked with TE have a prerequisite of admission to the Teacher Education Program.

EDCI 204 Introduction to Elementary and/or Secondary Education

Sem. 1 and 2. Class 1, Lab. 3, cr. 3. This course is a prerequisite for all other Education courses.

Provides career guidance experiences for those considering teaching careers. Includes field experience in an elementary or secondary classroom plus class discussions of issues such as school organization, curriculum, certification requirements, and teaching skills.

EDPS 230 Educational Psychology

Sem. 1 and 2. Class 2, Lab. 2, cr. 3. Prerequisite: EDCI 204. (Nonteaching majors are excepted from this prerequisite.)

This course is designed to develop understanding of the psychological processes of learning and instruction in a variety of learning environments. Learning theory, instructional models and strategies, principles of motivation and reinforcement, and methods of assessing learning outcomes are emphasized.

EDCI 260 Introduction to Computers in Education

Sem. 1, 2 and 3. Class 3, cr. 3 or Class 2, Lab. 2, cr. 2. Prerequisite: EDCI 204 or EDPS 230 or consent of instructor.

An introductory course covering instructional uses of microcomputers; the selection, evaluation, and management of hardware and software; and curricular applications for microcomputers.

EDCI 306 Teaching Reading in the Elementary School

Sem. 1 and 2. Class 3, cr. 3. Prerequisite: TE.

Methods and materials for teaching reading in the elementary school.

EDCI 307 Corrective Reading for the Classroom Teacher

Sem. 1 and 2. Class 2, Lab. 3, cr. 3. Prerequisites: EDPS 230, EDPS 330, EDCI 306 and TE.

Classroom procedures for the identification of reading difficulties; selection and application of appropriate methods and materials to provide corrective treatment.

EDCI 308 Practicum in Reading for the Classroom Teacher

Sem. 1 and 2. Class 1, lab 4, cr. 3. Prerequisites: EDCI 306 or EDCI 309, and EDCI 307, TE.

For prospective teachers in elementary or secondary schools who desire advanced supervised practice in teaching reading to pupils experiencing reading difficulty. It is required for a minor in reading. The seminar will evaluate diagnostic and tutoring strategies, methods, materials, and achievement.

EDCI 310 Literacy and the Young Child

Sem. 1 and 2. Class 3, cr. 3.

Explores aspects of child development including early developmental influences and preschool learning and their relevance to literacy. Examines methods and materials appropriate for preschool and beginning literacy. Instruction and assessment.

EDCI 311 Media for Children

Sem. 1 and 2. Class 2, cr. 3.

Books, films, filmstrips, records, magazines, and other resources provided in elementary media centers are studied and evaluated to meet the personal and educational needs of pupils in elementary schools. Emphasis is on wide reading of children's books and viewing of many media and their utilization with children.

EDCI 314 Teaching the Language Arts in the Elementary School

Sem. 1 and 2. Class 3, cr. 3. Prerequisite: TE.

Materials and methods of teaching oral and written language, listening, spelling, and handwriting in the elementary school.

EDCI 315 Teaching Mathematics in the Elementary School

Sem. 1 and 2. Class 3, cr. 3. Prerequisites: MA 130, MA 131, MA 132, EDCI 204, EDPS 230, TE.

Materials and methods used in teaching mathematics at various grade levels in the elementary school.

EDCI 316 Teaching Social Studies in the Elementary School

Sem. 1 and 2. Class 3, cr. 3. Prerequisite: TE.

Curriculum principles and objectives, organization of materials, instruction techniques, and evaluation procedures.

EDCI 317 Teaching of Science in the Elementary School Curriculum

Sem. 1 and 2. Class 2, lab 2, cr. 3. Prerequisites: TE, BIOL 205, BIOL 206 and PHYS 210.

Provides experiences in developing skills for teaching science as well as understanding appropriate subject matter, includes evaluation techniques and procedures.

EDPS 330 Classroom Management

Sem. 1 and 2. Class 3, cr. 3. Prerequisites: EDPS 230, TE.

Presents methods of collecting and using information about the behavior and development of children in the elementary school.

EDPS 360 The Exceptional Student in the Regular Classroom

Sem. 1 and 2. Class 3, cr. 3. Prerequisite: EDPS 260 or consent of the instructor.

Builds on basic concepts surveyed in EDPS 260. Background, rationale, and practice skills will be related to such topics as mainstreaming, delivery systems, student's feelings and attitudes, teacher perceptions and expectations, referral process and placement, and implications of specific handicapping conditions.

EDCI 385 Teaching in a Pluralistic World
Sem. OC. Class 3, cr. 3. Prerequisite: EDCI 204 or EDPS 261 or equivalent.
Enhancement of culturally responsive teaching through learning about sociocultural diversity. Topics and activities include analysis of personal sociocultural characteristics; knowledge about diversity and its impacts on teaching and learning; field experiences in diverse school settings; and development of instructional materials that reflect a multicultural component.

EDFA 400 Social and Philosophical Foundations of Education
Sem. 1. Class 3, cr. 3. Available for credit by examination. Prerequisite: TE.
Introduction to the social forces, philosophical thought, and legal principles upon which American education is based; including community structure; the organization and administration of public schools; American ideals and conflicts in relation to the schools; the interaction between education and social change; and the legal status, rights, and responsibilities of teachers.

EDCI 401 Reading Comprehension in the Content Areas
Sem. 1 and 2. Class 3, cr. 3. Prerequisite: EDCI 306 or EDCI 309, TE.
Fulfills requirement for reading endorsement. Reading comprehension related to organizing and remembering expository text for primary, intermediate, and middle school students. Teaching strategies for general and specific content area comprehension.

EDCI 490 Individual Research and Teaching Experience
Sem. 1, 2 and 3. cr. 1-8. Prerequisites: TE and consent of instructor. May be repeated for credit.
Primarily for teacher candidates requiring special, individualized experience in research or teaching.

EDFA 490 Individual Research and Teaching Experience
Sem. 1, 2 and 3. cr. 1-8. Prerequisites: TE and consent of instructor. May be repeated for credit.
Primarily for teacher candidates requiring special, individualized experience in research or teaching.

EDPS 490 Individual Research and Teaching Experience
Sem. 1, 2 and 3. cr. 1-8. Prerequisites: TE and consent of instructor. May be repeated for credit.
Primarily for teacher candidates requiring special, individualized experience in research or teaching.

EDCI 490A Supervised Teaching Intermediate (Grades 4, 5, or 6)
Sem. 1 and 2. cr. 8-10. Prerequisites: EDCI 204, EDPS 230, TE; completion of all education methods courses required for the major area.
Teaching full-time in a school classroom under the supervision of the teacher in charge of the class and a university supervisor.

EDCI 498P Supervised Teaching Primary (Grades 1, 2 or 3)
Sem. 1 and 2. cr. 8-10. Prerequisites: EDCI 204, EDPS 230, TE; completion of all education methods courses required for the major area.
Teaching full-time in a school classroom under the supervision of the teacher in charge of the class and a university supervisor.

DUAL LEVEL
Undergraduate-Graduate Courses

EDFA 500 History and Philosophy of Education
Sem. 2. Class 3, cr. 3.
Consideration of the major ideas, trends, and movements in the development of education. This course will be taught under three separate topics as follows: (1) History of Western Education, (2) History of American Education, and (3) Philosophy of American Education. Students may enroll for more than one section.

EDCI 500 Foundations of Literacy

Sem. 1 and 2. SS. Class 3, cr. 3. Prerequisite: 12 credit hours of education and psychology.
First graduate course in reading sequence. Considers history, psychology, and current practices in development and remedial reading.

EDPS 500 Human Relations in Group Counseling

Sem. 2. Class 2, Lab. 2, cr. 3. Admission by consent of instructor.
Human relations skills and the stages and functioning of group counseling and other group processes are treated in the didactic component. Students participate in small groups designed to increase personal awareness and relationship skills in the two clock hours laboratory component.

EDCI 502 Reading in Middle and Secondary Schools

Sem. 2. Class 3, cr. 3. Prerequisite: 12 hours of education and psychology.
Designed for teachers and prospective teachers in subject matter areas of the junior and senior high school. Surveys of techniques and objectives of reading instruction in the schools with special attention to the opportunities and obligations to teach reading within context areas. Teaching experience helpful but not required.

EDCI 504 Children's Literature

Sem. 1 and 2. Class 3, cr. 3.
A survey of modern and traditional literature for children including authors and illustrators; guidance in uses of children's literature in relation to developmental interests, needs, and skills of children; emphasis is on evaluating materials, reviewing sources, and developing discrimination in choosing children's literature.

EDCI 508 Computer Applications in Reading and Writing Instruction

Sem. 1 and 3. Class 3, cr. 3. Prerequisite: EDCI 306 or EDCI 500, or consent of instructor.
Examines the role of the microcomputer and related technology in classroom instruction, learning, and assessment relative to reading and writing education.

EDCI 509 The Process Approach to Writing: Teaching and Assessment

Sem. 1 and 3. Class 3, cr. 3. Prerequisite: EDCI 306, EDCI 500, or consent of instructor.
Focuses on understanding philosophical and theoretical underpinnings of the process approach to writing, current reading / writing research, and how this approach fits into existing school curricula.

EDPS 530 Advanced Educational Psychology

Sem. 2. Class 3, cr. 3. Prerequisite: EDPS 230.
Theories of learning and development, research on instruction and learning, and principles of measurement applied to educational problems.

EDPS 531 Introduction to Measurement and Evaluation

Sem. 1. Class 3, cr. 3.
An introduction to the basic concepts and principles of measurement and evaluation, with special emphasis on descriptive statistics, and teacher-made and standardized tests.

EDCI 560 Educational Technology for Teaching and Learning

Sem. 2. Class 2, Lab. 2, cr. 3.
Applications of microcomputers in educational and training settings. Course stresses appraisal, utilization, and evaluation of microcomputer software and hardware. Implementation and management of computers in instructional environments. Teaching of basic computer literacy concepts to learners of all ages.

EDCI 561 Computer-assisted Instruction

Sem. 3. Class 3, cr. 3. Prerequisites: EDPS 530, and EDCI 560, or equivalent, or consent of instructor.
Examines aspects of computer-assisted instruction. Primary focus upon application of effective learning design strategies for computer-mediated instruction within popular CAI languages such as BASIC and PILOT, basic computer managed instruction system including practical classroom considerations.

EDPS 563 Identification, Evaluation, and Assessment of Exceptional Individuals

Sem. 1. Class 3, cr. 3. Prerequisite: course in measurement or consent of instructor.
Advanced procedures for educational assessment of exceptional individuals: norm-referenced and curriculum-based measurement, error analyses, and observational ratings. Adaptations and selections of tests for sensory impairments, behavioral styles, and different intelligence levels and ages.

EDPS 567 Teaching of Exceptional Children

Sem. 2. Class 3, cr. 3. Prerequisite: admission to teacher education program or consent of instructor.
Humanistic techniques for managing behavior, development of problem-solving, communication, and social skills in exceptional youth. Curriculum adaptations to facilitate nontraditional teaching approaches for children with alternative behavioral, emotional, and social styles.

EDCI 570 Delivery Systems for Education and Training

Sem. 1. Class 1 or 3, cr. 1-3.
Selection, utilization, and evaluation of instructional media and technologies of instruction used in formal education and business/industrial training; emphasis on systematic planning for use of media.

EDCI 571 Production of Instructional Materials

Sem. 2. Class 1, Lab. 4, cr. 3
Design and preparation of a variety of instructional materials for use by instructional materials specialists, teachers, librarians, and audio-visual coordinators in educational situations. Laboratory practice is provided in production of these materials.

EDCI 585 Multicultural Education

Sem. 1 and 3. Class 3, cr. 3.
Concepts and theories of ethnicity and cultural pluralism; implications for educational change. Examination of value systems and cultural characteristics of various ethnic groups, different ethnic learning styles, ethnically pluralistic curriculum content and instructional materials, and conceptual curriculum design strategies for implementing multicultural change.

EDCI 589 Special Topics for Teachers

Sem. OC. Class 1-4, cr. 1-4. May be repeated for credit. Offered only on pass/not pass option.
Examines professional problems of experienced educational personnel through workshops or inservicing. Not available for use in graduate degree programs.

EDFA 589 Special Topics for Teachers

Sem. OC. Class 1-4, cr. 1-4. May be repeated for credit. Offered only on pass/not pass option.
Examines professional problems of experienced educational personnel through workshops or inservicing. Not available for use in graduate degree programs.

EDPS 589 Special Topics for Teachers

Sem. OC. Class 1-4, cr. 1-4. May be repeated for credit. Offered only on pass/no pass option.
Examines professional problems of experienced educational personnel through workshops or inservicing. Not available for use in graduate degree programs.

EDCI 590 Individual Research Problems

Sem. 1 and 2. cr. 1-6. Prerequisites: 6 credit hours of psychology and 6 credit hours of education, or equivalent professional training.
Opportunities for students to study particular problems under the guidance of a member of the staff. This plan of individualized instruction may be used in any field of education or vocational education. Does not include thesis work.

EDPS 590 Individual Research Problems

Sem. 1 and 2. cr. 1-6. Prerequisites: 6 credit hours of psychology and 6 credit hours of education, or equivalent professional training.
Opportunities for students to study particular problems under the guidance of a member of the staff. This plan of individualized instruction may be used in any field of education or vocational education. Does not include thesis work.

EDCI 591 Special Topics in Education
Sem. 1 and 2. cr. 1-4. May be repeated for credit.
Group study of a current problem or special topic of interest to professional educational personnel. Intensive study of research, theory, or practical aspects of a particular issue within the usual graduate class format.

EDPS 591 Special Topics in Education
Sem. 1 and 2. cr. 1-4. May be repeated for credit.
Group study of a current problem or special topic of interest to professional educational personnel. Intensive study of research, theory, or practical aspects of a particular issue within the usual graduate class format.

GRADUATE LEVEL

EDCI 602 Language Arts in the Elementary School
Sem. 3. Class 3, cr. 3. Prerequisite: EDCI 314, its equivalent, or consent of instructor.
Research, recent trends, and current developments in the field of language arts and implications for classroom practice in the elementary school.

EDCI 603 Reading in the Elementary School
Sem. 1. Class 3, cr. 3. Prerequisite: EDCI 306, EDCI 500 or equivalent, or consent of instructor.
Research, recent trends, and current developments in the field of reading instruction. Emphasis will be on improving developmental reading in the elementary school programs rather than on surveying remedial programs.

EDCI 604 Social Studies in the Elementary School
Sem. 3. Class 3, cr. 3. Prerequisite: EDCI 316, its equivalent, or consent of instructor.
Social Studies content and place in the modern elementary education curriculum. Materials, instruction techniques, evaluation procedures, and understanding the syntax of the structure of social studies.

EDCI 605 Science in the Elementary School
Sem. 2. Class 3, cr. 3. Prerequisite: EDCI 317 or equivalent, or consent of instructor.
Analysis of historical developments and present trends in elementary school science education; the designing, implementation, and evaluation of science programs; the role of research in present and future developments.

EDCI 606 Mathematics in the Elementary School
Sem. 3. Class 3, cr. 3. Prerequisite: EDCI 315, or consent of instructor.
Historical and current curriculum developments in mathematics education with implications for classroom practice; analysis of instructional strategies; cognitive development; use of research results.

EDCI 608 Individualizing Instruction in the Elementary and Secondary School
Sem. 2. Class 3, cr. 3. Prerequisite: completion of a teacher certification program or consent of instructor.
This course explores the foundations underlying individualized instruction, the preparation of individualized instruction materials for the classroom, the role of research in individualized instruction, and the future trends and issues in individualized instruction.

EDCI 681 Elementary School Curriculum
Sem. 1. Class 3, cr. 3. Prerequisite: 12 hours in education and psychology.
Needs of children and society; modern programs; procedures for developing a curriculum, including ways to improve the present offerings of a school.

ELECTRICAL ENGINEERING TECHNOLOGY

EET 107 Introduction to Circuit Analysis
Sem. 1. Class 3, Lab. 3, cr. 4. Corequisite: MA 153.
Voltage, current, resistance, Ohm's Law, Kirchoff's Laws, resistance combinations, and Thevenin's, Norton's, and superposition Theorems are studied. DC and AC sources are studied and utilized with basic AC terminology described. The performances of ideal transformers, capacitors and inductors, and first order, R, C,

and L are investigated. Fundamental analog circuits are utilized in the laboratory to enhance the understanding of basic laws and theorems.

EET 109 Digital Fundamentals
Sem. 1. Class 2, Lab. 3, cr. 3. Corequisite: CPT 175E or departmental approval.
This course introduces basic gate and flip-flop logic devices and their application in combinational and sequential digital circuits. Topics include decoders, displays, registers, and counters. Logic circuit analysis, implementation of circuits using standard IC chips or programmable logic devices, circuit testing, and troubleshooting are emphasized.

EET 157 Electronic Circuit Analysis
Sem. 2. Class 3, Lab. 3, cr. 4. Prerequisites: EET 107, MA 153, CPT 175E.
Diodes, various discrete and IC regulated power supplies, transistor biasing techniques, and characteristics of small signal amplifiers are studied. Additional topics such as dependent sources, operational amplifiers, non-ideal DC op amp characteristics, waveform generation, and IC fabrication overview are also covered. Circuit fundamentals such as Kirchhoff's laws are utilized in the analysis and design of circuits. Computer-aided analysis of circuits is used.

EET 159 Digital Applications
Sem. 2. Class 3, Lab. 3, cr. 4. Prerequisite: EET 107 and EET 109.
This course continues the study of combinational and sequential digital applications. The input and output characteristics of the various common logic families and the appropriate signal conditioning techniques for on/off power interfacing are discussed. Also stressed are standard logic function blocks, digital and analog signal interfacing techniques, and memory devices.

EET 196 Exploring EET
Sem. 1 and 2. Class 1, Lab. 2, cr. 2 or Class 1, Lab. 3, cr. 2.
This course explores the EET field. Also practical experiences designed to aquaint the student with basic hand and machine tools and processes required to connect simple residential circuits; fabricated printed circuit boards; and process plastic and metal into custom parts will be given. Verbal and written communication skills are utilized to report project progress and results.

EET 207 AC Electronics Circuit Analysis
Sem. 1. Class 3, Lab. 3, cr. 4. Prerequisites: EET 157 and MA 154.
A study of AC electrical circuits, j operator, phasors, reactance, impedances, phase relationships, laws, network theorems, fundamentals of Fourier analysis and their applications to passive and IC filters, amplifiers, resonant circuits, single phase and three phase circuits and an introduction to magnetic circuits.

EET 209 Introduction to Microcontrollers
Sem. 1. Class 3, Lab. 3, cr. 4. Prerequisites: EET 155 or EET 159 and CPT 175E or equivalent.
This course is an introduction to microprocessor hardware and software focusing on embedded control applications. Interconnections of components, peripheral devices, bus timing relationships, assembly language programming, debugging, input/output techniques, and use of PC based software development tools are studied. C programming of microcontollers is introduced.

EET 214 Electricity Fundamentals
Sem. OC. Class 2, Lab. 2, cr. 3. Course not open to EET students. Prerequisite: MA 154.
An introduction to the fundamentals of electricity; characteristics, operation, function, and testing of basic electrical circuits.

EET 231 Electrical Power and Controls
Sem. 3. Class 3, Lab. 3, cr. 4. Prerequisites: MA 154 and EET 157.
An introduction to magnetic materials and properties, transformers and power conditioning equipment, induction motors, motor control devices, programmable logic controllers, and PLC input and output devices. Also studied are single-phase and three-phase power systems, and power systems communications and monitoring.

EET 233 Electronics and Industrial Controls
Sem. OC. Class 2, Lab. 3, cr. 3. Prerequisite: EET 214. Not open to EET students.
Familiarization with electronics as applied to industry. Basic theory and application of electronics to controls for industrial equipment and data processing.

EET 257 Power and RF Electronics
Sem. 2. Class 3, Lab. 3, cr. 4. Prerequisite: EET 207.
This course is a study of the application of circuit analysis techniques, amplifiers used in power and RF electronics, including bipolar junction transistors, field effect transistors, RF oscillators (crystal), mixers, AM/FM modulation, phase lock loops, frequency synthesis, switching power supplies, and active filters. Computer-aided analysis of circuits is used.

EET 276 Electronic Troubleshooting Laboratory
Sem. OC. Class 1, Lab. 3, cr. 2. Prerequisite: EET 109. Corequisite: EET 257.
Experimental work in analyzing and repairing equipment. The use of test instruments to locate faulty components in AM and FM receivers, television, and industrial circuits.

EET 302 Introduction to Control Systems
Sem. OC. Class 3, Lab. 3, cr. 4. Prerequisite: EET 231.
This first course in industrial controls is applications oriented and includes on-off type open and closed-loop control systems, and analog-based systems. Major topics include relay and programmable controller-based systems.

EET 303 Communications I
Sem. OC. Class 3, Lab. 2, cr. 4. Prerequisites: EET 257 and MA 224.
A study of AM and FM modulation and detection, receivers, transmitters, networks, filters, antennas, and transmission lines through the VHF frequency spectrum.

EET 309 Imbedded Controllers
Sem. OC. Class 3, Lab. 3, cr. 4. Prerequisite: EET 209.
A course emphasizing applications of microcomputers to dedicated hardware functions. A high-level language is used, and emphasis is placed on the use of programmable peripherals. A variety of microcontroller hardware is utilized.

EET 317 Digital Circuits and Subsystems
Sem. OC. Class 3, Lab. 2, cr. 4. Prerequisites: EET 159 and EET 257.
A study of sequential circuits, memories, A/D and D/A conversion, counters, registers, arithmetic logic units, timing, and multiplexers in MSI and LSI form. Elementary I/O devices are introduced.

EET 331 Generation and Transmission of Electrical Power
Sem. OC. Class 3, Lab. 2, cr. 4. Prerequisite: EET 231.
A study of the generation and transmission of electrical energy. Includes techniques used by electric utilities for the protection of generating equipment and transmission lines, an introduction to the economic considerations of power plant operation, and three-winding transformers and methods of solving unbalanced three-phase systems.

ENGINEERING

FRESHMAN ENGINEERING

ENGR 100 Freshman Engineering
Sem 1. Class 1, cr. 1. (Available on a pass/not-pass only.)
An introduction to the engineering profession.

ENGR 195E "C" or "C++" Language Programming for Engineering and Technical Applications
Sem. 1 and 2. Class 3, cr. 3. Prerequisite: CPT 175E or a prior introduction to computer programming language course.
An introduction to "C" or "C++" language programming. Course topics include data types, control flow, operators and expressions. Applications to engineering and technology.

ELECTRICAL ENGINEERING

EE 201 Linear Circuit Analysis I
Sem. 2. Class 3, cr. 3 (3EE). Prerequisite or corequisite: MA 261.
Volt-ampere characteristics for circuit elements; independent and dependent sources; Kirchhoff's laws and circuit equations. Source transformations. Thevenin's and Norton's theorems; superposition. Transient response of RC, RL, and RLC circuits. Sinusoidal steady-state and impedance. Instantaneous and average power.

EE 202 Linear Circuit Analysis II
Sem. 3. Class 3, cr. 3 (4 EE). Prerequisite: EE201; prerequisite or corequisite: MA 262.
Continuation of EE 201. Use of computer-aided design programs. Complex frequency plane, resonance, scaling, and coupled circuits. Two-port network parameters. Laplace transform methods. Use of trees, general loop and nodal equations, and matrix formulation.

EE 207 Electronic Measurement Techniques
Sem. 2 or 3. Lab. 3, cr. 1. Prerequisite or corequisite: EE 201.
Experimental exercises in the use of laboratory instruments. Includes voltage, current impedance, frequency, and wave form measurements. Frequency and transient response. Elements of circuit modeling and design.

MECHANCIAL ENGINEERING

ME 200 Thermodynamics I
Sem. 2. Class 4, (1 hr. of problems), Lab. 0, cr. 3. Prerequisite or corequisite: MA 261.
First and second laws, entropy, reversible and irreversible processes, properties of pure substances. Application to engineering problems.

ME 270 Basic Mechanics I
Sem. 1. Class 3, cr. 3. Prerequisite: PHYS 152. Corequisite: MA 261.
Fundamental concepts of mechanics: vector operations, forces and couples, free body diagrams, equilibrium of a particle and of rigid bodies. Friction. Distributed forces. Centers of gravity and centroids. First and second moments of areas, lines, and volumes. Applications from structural and machine elements such as bars, trusses, and friction devices. Kinematics and equations of motion of a particle for rectilinear and curvilinear motion.

ENGLISH

ENGL 100 English Composition
Sem. 1 and 2. Class 3, Lab 2, cr. 3. Depending on student's program, may not count toward graduation.
For students who need an extensive review of the fundamentals of English grammar, syntax, punctuation, and mechanics, or an introduction to some of the essential principles of composition. After successful completion of ENGL 100, students are assigned to ENGL 101.

ENGL 101 English Composition I
Sem. 1, 2 and 3. Class 3, cr. 3. Prerequisite for all courses in English except ENGL 100 and any other courses specified by the section in individual cases.
The first semester of the first-year composition sequence. This course is intended to help students write clear and effective prose for their work at the University and beyond. It includes the study of the writing process, matters of grammar, structure, and style, and entails extensive practice in the writing and revising of expository essays.
*Students who receive an "A" in English 101 may, **with their school's approval,** substitute an elective course in English for English 102, if English 102 is required.*

ENGL 102 English Composition II
Sem. 1, 2 and 3. Class 3, cr. 3. Not open to students who have taken ENGL 103 in other divisions of the University.
The second semester of the first-year composition sequence. Students practice critical reading and thinking, and arguing a thesis in clear and effective prose. The course also involves preparation of at least two research papers.
*Students who receive an "A" in English 101 may, **with their school's approval,** substitute an elective course in English for English 102, if English 102 is required.*

While there are, in most cases, no formal prerequisites for courses in English at the 200 level and above, students are advised to complete first-year English composition requirements before taking such courses.

ENGL 201 The Nature of Literary Study
Sem. 2. Class 3, cr. 3. Required of English majors.
A study of literary concepts and critical procedures as applied to representative poetry, fiction, and drama, with practice in critical writing.

ENGL 227 Elements of Linguistics (AUSL 227)
Sem. 1 and 2. Class 3, cr. 3. Credit will not be awarded for both ENGL 227 and FLL 261.
A summary of what is known about human language, its structure, its universality, and its diversity; language in its social setting; language in relation to other aspects of human inquiry and knowledge.

ENGL 230 Great Narrative Works
Sem. OC. Class 3, cr. 3.
Reading and discussion of great narratives from Homer's *Odyssey* to the present, considering works from a variety of cultures and time periods in order to develop an understanding of their ideas, structures, styles and cultural values.

ENGL 231 Introduction to Literature
Sem. OC. Class 3, cr. 3.
Reading and discussion of great works of various types to develop an understanding of their ideas, structures, and styles. Includes poetry, drama, biography, essay, and prose fiction.

ENGL 232 Thematic Studies in Literature
Sem. OC. Class 3, cr. 3. May be repeated once for credit, and subsequently only with permission of the department head.
Examination of a particular theme, such as the hero, death, or the city, and the techniques by which it is treated in various literary works, usually in more than one genre.

ENGL 235 Introduction to Drama
Sem. OC. Class 3, cr. 3.
Reading and discussion of plays of various styles from significant periods of dramatic literature aimed at enhancing the understanding and appreciation of the form and content of all drama.

ENGL 237 Introduction to Poetry
Sem. OC. Class 3, cr. 3.
How to read poetry intelligently; function of diction, metrics, figures of speech, and theme; place of a poem in history, uses of poetry, etc.

ENGL 238 Introduction to Fiction
Sem. OC. Class 3, cr. 3.
Reading and discussion of short stories and seven novels to promote awareness, understanding and appreciation of the range, values, techniques, and meanings of modern fiction.

ENGL 239 Introduction to Biography
Sem. OC. Class 3, cr. 3.
Reading and discussion of modern biographies and influential earlier texts. Special attention given to the history of biographical writing and to the study of biography as a recognizable form of writing and a means of understanding and ordering human experience.

ENGL 240 Survey of British Literature: From the Beginnings Through the Neoclassical Period
Sem. 2E. Class 3, cr. 3.
Surveys authors, periods, and themes of British literature from the beginnings through the eighteenth century.

ENGL 241 Survey of British Literature: From the Rise of Romanticism to the Modern Period
Sem. 2O. Class 3, cr. 3.
Surveys authors, periods, and themes of British literature from the late eighteenth century through the modern period.

ENGL 250 Great American Books
Sem. OC. Class 3, cr. 3.
Selected works, such as *The Scarlet Letter, Moby Dick, Uncle Tom's Cabin, Absalom, Absalom!, Their Eyes Were Watching God,*

Native Son, and *Beloved,* closely read and discussed as to their literary qualities and their cultural significance.

ENGL 257 Literature of Black America
Sem. 2. Class 3, cr. 3.
A survey of literature written by black American authors. Close attention paid to the history of black literature and to the historical context in which it was written, as well as to the texts of major works by black writers.

ENGL 262 Greek and Roman Classics in Translation
Sem. OC. Class 3, cr. 3.
Study of important works of Greek and Roman literature, their intrinsic literary values, and influence on later European and American writing and thinking.

ENGL 264 The Bible as Literature
Sem. OC. Class 3, cr. 3.
A study of selections from Old and New Testaments as examples of Hebrew and early Christian literature.

ENGL 266 World Literature: From the Beginnings to 1700 A. D.
Sem. 2. Class 3, cr. 3.
World literature in translation. Emphasis is on Greek, Hebrew, and early European literatures–the basis of the Western cultural heritage.

ENGL 267 World Literature: From 1700 A.D. to the Present
Sem. 1 and 2. Class 3, cr. 3.
World literature in translation and growth in the Western heritage, as reflected primarily in French, English, German, and Russian imaginative writing.

ENGL 304 Advanced Composition
Sem. 1O. Class 3, cr. 3. Prerequisite: Completion of basic composition requirement.
Designed for students who wish additional training in composition beyond the basic requirements. Extensive practice in the writing of mature expository, critical, and argumentative prose. (The course satisfies the Indiana certification requirement of three hours of advanced composition.)

ENGL 327 English Language I: History and Development
Sem. 1O. Class 3, cr. 3. Prerequisite: ENGL 227 or equivalent.
Introduction to the history of the English language, its sounds, inflections, words, and sentence structures. Cultural and historical events affecting this history, and the interplay between language and literature.

ENGL 331 Medieval English Literature
Sem. OC. Class 3, cr. 3.
A survey of Anglo-Saxon and Medieval English literature (700-1500 A.D.) through intensive reading of Old English heroic, elegiac, and religious poetry and Middle English romance, allegory, lyric, and drama, exclusive of Chaucer.

ENGL 333 Renaissance English Literature
Sem. 2 O. Class 3, cr. 3.
A survey of Renaissance literature in England through an intensive reading of representative works by such authors as Spenser, Jonson, and Donne. Shakespeare's plays not included.

ENGL 335 Restoration and 18th Century English Literature
Sem. OC. Class 3, cr. 3.
A survey of Restoration and 18th Century literature through an intensive reading of representative works by such authors as Dryden, Pope, Swift, and Johnson (the novel and the drama excluded for the most part).

ENGL 337 19th Century English Literature
Sem. OC. Class 3, cr. 3.
A survey of Romantic and Victorian literature through an intensive reading of representative works by such authors as Wordsworth, Byron, Keats, Tennyson, Browning, and Arnold (the novel excluded).

ENGL 350 Survey of American Literature: From its Beginnings to 1865
Sem. 1O. Class 3, cr. 3.
Emphasizes such major literary figures as Edward Taylor, Franklin, Poe, Hawthorne, Melville, Emerson, Thoreau,

and Whitman. The course also treats significant minor writers in their relation to literary movements and ideas and includes the works of minority writers.

ENGL 351 Survey of American Literature: From 1865 to the Post-World War II Period

Sem. 2E. Class 3, cr. 3.

Emphasizes such major literary figures as Dickinson, Twain, James, Crane, Frost, T.S. Eliot, Fitzgerald, Hemingway, and Faulkner. The course also treats significant minor writers in their relation to literary movements and ideas and includes the works of minority writers.

ENGL 356 American Humor

Sem. OC. Class 3, cr. 3.

Humorous writings of the 19th and 20th centuries are studied as to form and technique and also as a reflection of American life. Special emphasis on Mark Twain.

ENGL 360 Women in Literature

Sem. 1E. Class 3, cr. 3.

A study of representative literary works–poetry, drama, and/or fiction–by and about women.

ENGL 372 American Folklore

Sem. OC. Class 3, cr. 3.

The study of Anglo-American traditions: folk tale, song, dance, humor, superstition, games, beliefs, etc., with emphasis on informal discussion of readings, recordings, movies, and lectures.

ENGL 373 Science Fiction and Fantasy

Sem. OC. Class 3, cr. 3.

Representative works of science fiction and fantasy examined in relation to both mainstream and popular literature. Emphasis is on technique, theme, and form.

ENGL 375 British Drama to 1800, Exclusive of Shakespeare

Sem. OC. Class 3, cr. 3.

A survey of major works of British drama from its medieval beginnings to 1800, including works by such authors as Marlowe, Jonson, Webster, Dryden, Congreve, and Sheridan.

ENGL 376 The Movies

Sem. 2E. Class 2, Lab. 3, cr. 3.

The history and aesthetics of the movies from *The Great Train Robbery* and *The Birth of a Nation* or *Intolerance* to contemporary films. Comparison of the cinematic method with the methods of the drama and the novel. One afternoon or evening a week for the screening of films; two periods a week for discussion.

ENGL 377 Major Modern Poetry

Sem. OC. Class 3, cr. 3.

The development of new trends in and the interrelationships among the poetry of Ireland, Britain, and the United States. Poets central to modernism, such as Yeats, Pound, Eliot, Williams, and Stevens, will be emphasized, and students will also read more recent poets.

ENGL 379 The Short Story

Sem. OC. Class 3, cr. 3.

An historical and critical study of 19th and 20th century short stories – Irish, British, American, and Continental.

ENGL 381 The British Novel

Sem. OC. Class 3, cr. 3.

A survey of representative British novels of the 18th and 19th centuries by such authors as Defoe, Fielding, Austen, Dickens, Eliot, and Hardy.

ENGL 382 The American Novel

Sem. OC. Class 3, cr. 3.

A survey of representative American novels of the 19th and 20th centuries by such authors as Cooper, Hawthorne, Melville, Twain, James, and Faulkner.

ENGL 383 Modern Drama: Ibsen to the Absurdists

Sem. OC. Class 3, cr. 3.

A survey of major works of Continental, English, and American drama, including such authors as Ibsen, Chekhov, Shaw, O'Neill, and Beckett.

ENGL 391 Composition for English Teachers

Sem. 1E. Class 3, cr. 3. Required for English teaching majors and minors.

This course involves equal amounts of theory and practice in developing writing assignments, responding to student writing, supporting students as they write, and classroom strategies for teaching composition.

ENGL 396 Studies in Literature and Language

Sem. OC. Class 3, cr. 3. May be repeated for credit.

A course in the study of a special topic directed by an instructor in whose particular field of specialization the content of the course falls.

ENGL 405 Creative Writing

Sem. 2E. Class 3, cr. 3. May be repeated once for credit, subsequently only with permission of the department head. Prerequisite: literature course or permission of instructor.

Practice in writing short prose narratives and poetry for students who have finished freshman composition and wish to develop their skills further. Workshop criticism.

ENGL 420 Business Writing

Sem. 1, 2 and 3. Class 3, cr. 3. Prerequisite: completion of freshman composition requirement.

Attention to purpose, readers, information, organization, and style in on-the-job writing. Special emphasis on planning, drafting, and revising. Typical assignments: resumes, proposals, progress reports, long reports, letters.

ENGL 441 Chaucer's Canterbury Tales

Sem. 1E. Class 3, cr. 3.

Critical reading of *The Canterbury Tales* in Middle English with attention to the literary and cultural background.

ENGL 442 Shakespeare

Sem. 2E. Class 3, cr. 3.

Shakespeare's dramatic craftsmanship, poetry, humor, characterization, psychology, and modern pertinence illustrated in representative tragedies, comedies, and history plays.

ENGL 444 Milton's Major Poetry

Sem. 1O. Class 3, cr. 3.

A study of Milton's major poetry, with particular emphasis upon *Paradise Lost* and *Samson Agonistes.*

ENGL 455 Main Currents of American Thought

Sem. OC. Class 3, cr. 3.

A survey of dominant ideas and intellectual trends in America from 1607 to the present as revealed through American literature and as related to American life and culture.

ENGL 468 Problems in the History of Criticism

Sem. OC. Class 3, cr. 3.

Introduction to the history of literary criticism and theory through study of selected key terms, debates, figures, and texts. Concentration on such topics as representation, authorship, literary form, and interpretation.

ENGL 469 Issues in Contemporary Criticism and Theory

Sem. 1E, Class 3, cr. 3

Study of recent critical movements and texts. Emphasis on methods of literary analysis, including philosophical, cultural, and formalist approaches. Discussion of, for example, structuralist, psychoanalytic, feminist, Marxist, poststructuralist, and emerging non-Western critical schools

ENGL 470 Theories of Rhetoric and Composition

Sem. 1O. Class 3, cr. 3.

A general introduction to the field of rhetoric and composition. The course provides an overview of studies in written discourse, including studies of the processes and contexts of written discourse as well as methods of research in the field.

DUAL LEVEL
Undergraduate-Graduate Courses

General prerequisite for all English literature courses numbered above 500: fulfillment of the basic composition requirement and 6 credit hours of literature, or consent of the instructor.

ENGL 589 Directed Writing

Sem. OC. Cr. 1-3. Prerequisite: consent of the instructor. May be repeated for credit.

Writing–creative, popular, technical, biographical, historical, philosophical–on subjects of the student's choice. Individual conferences only; no class meetings.

ENGL 590 Directed Reading
Sem. OC. Cr. 1-3. Prerequisite: consent of the instructor. May be repeated for credit.
Directs the reading of students with special interests. Guides students in profitable reading in subjects of their own choice. Individual conferences; no class meetings.

ENGL 591 Introduction to Composition Theory
Sem. 1E. Class 3, cr. 3.
A survey of major contemporary theories of invention and style, including such topics as heuristics; the aims and modes of discourse; stylistics; readability theories; sentence-combining; error analysis; audience; and evaluation. Applications to teaching will be made.

ENGL 596 Advanced Studies in Literature or Language
Sem. OC. Class 3, cr. 3. May be repeated for credit.
Advanced study of a topic within the instructor's fields of specialization. Emphasis on scholarly analysis and research.

FOODS AND NUTRITION

F&N 203 Foods:Their Selection and Preparation
Sem. 1 and 2. Class 2, Lab. 3, cr. 3. Credit not given for both F&N 203 and F&N 205.
Principles of food selection, preparation, and meal planning.

F&N 303 Essentials of Nutrition
Sem. 1, 2 and 3. Class 3, cr. 3. Credit not given for both F&N 303 and F&N 315.
Basic nutrition and its application in meeting nutritional needs of all ages.

FORESTRY AND NATURAL RESOURCES

FNR 103 Introduction to Environmental Conservation
Sem. OC. Class 3, cr. 3.
A broad treatment of the scientific basis for forestry and associated natural resources. For students majoring in forestry and natural resources and those interested in a natural resources course as an elective.

FNR 382 Natural Resources and Man
Sem. 2. Class 3, cr. 3.
A survey of the interrelationships among man, natural resources, and the environment. Course satisfies conservation requirement for teacher certification.

FNR 388 Ichthyology
Sem. 1. Class 2, cr. 2. Prerequisites: BIOL 121/122 and BIOL 131/132.
Functional morphology, physiology, behavior, and ecological relationships of fish; classification and identification of freshwater species; introduction to fishery management principles.

FNR 389 Ichthyology Laboratory
Sem. 1. Lab 2, cr. 1. Corequisite: FNR 388.
Laboratory on classification and identification of freshwater species; introduction to fisheries management principles.

FNR 501 Limnology
Sem. 1 Class 3, cr. 3. Prerequisite: BIOL and CHM core.
Study of aquatic communities in relation to the chemical and physical features of inland water; emphasis on management strategies for lake and stream habitats. One weekend field laboratory is required.

FNR 523 Aquaculture
Sem. 2. Class 3, cr. 3. Prerequisites: FNR 388, FNR 389, and FNR 501, or consent of instructor.
Historical perspectives and current practices in aquaculture, including production systems, feeds, water quality requirements, and diseases of commercially important species.

FNR 540 Wetlands Ecology
Sem. 1. Class 2, lab. 4, cr. 3. Prerequisites: BTNY 555 and consent of instructor.
Examination of the biotic and abiotic factors which influence wetlands, including the ecological, socioeconomic, and hydrological values of wetlands. Restoration and wildlife utilization also are examined. Laboratories involve examinations of various aspects of wetland ecology.

FNR 545 Fisheries Biology and Management
Sem. OC. Class 3, cr. 3. Prerequisites: FNR 388, FNR 501, and STAT 301 or equivalent, or consent of instructor.
Management of important ecological, recreational, and commerical populations of aquatic animals.

FRENCH

FR 101 French Level I
Sem. 1O. Class 3, Lab. 1, cr. 3.
A beginning course in French. Introduction to the structure of the language. A certain number of basic grammatical rules and idiomatic constructions are covered, with illustrations of their application through simple, graduated textbook readings. Each lesson concentrates on specific rules and constructions with the objective of understanding through reading, and the use of the language through oral exercises. Main objective: supply students with tools to enable them to communicate in French at a basic level.

FR 102 French Level II
Sem. 2E. Class 3, Lab. 1, cr. 3. Prerequisite: FR 101.
Continuation of FR 101. Completion of study of basic grammar, proceeding in the same manner as FR 101. Reading with understanding and oral practice of the language. Main objective: to enable students to communicate in French at a basic intermediate level.

FR 201 French Level III
Sem. 1E. Class 3, cr. 3. Prerequisite: FR 102.
Application of knowledge of grammar and idiomatic constructions to reading with understanding of graduated texts, moderate creative writing, and capability to communicate in French at an intermediate level (simple face-to-face conversation, capability to formulate questions and satisfy basic survival needs). Occasional grammatical review when necessary. Introduction to French literature.

FR 202 French Level IV
Sem. 2O. Class 3, cr. 3. Prerequisite: FR 201.
Continuation of graduated readings with the objective of enlarging vocabulary and ability to construct creative sentences. Occasional grammatical review, when necessary. Practice in composition and conversation at an intermediate-high level. Further work in French literature.

GENERAL LANGUAGE AND LITERATURE

FLL 490 Special Topics in Foreign Languages and Literatures
Sem. 1 and 2. Cr. 1-4. Prerequisite: Consent of instructor. May be repeated for credit.

GENERAL BUSINESS

ACCOUNTING

GBA 227 Principles of Accounting I
Sem. 1 and 2. Class 3, cr. 3. Not open to students with credit in MGMT 200.
Introductory accounting includes the basic language, principles, and procedures of accounting. Emphasis on recording, classifying, and summarizing accounting data for financial statement reporting and analysis. **Assumed Ability:** Students who can perform at the level of MA 111 should enroll in this course. Students below that level of ability should not.

GBA 228 Principles of Accounting II
Sem. 1 and 2. Class 3, cr. 3. Prerequisite: GBA 227 or MGMT 200 or equivalent.
Continuation of GBA 227 with emphasis on accounting for partnerships, corporations, and analysis of financial statements. Accounting for manufacturing firms, managerial controls and cost determination are included.

GBA 290 Independent Study
Sem. 1 or 2. cr. 1-6. Hours and subject matter to be arranged with General Business Section.

GBA 320 Introduction to Federal Taxation
Sem. 1. Class 3, cr. 3. Prerequisite: GBA 228 or equivalent.
An introductory course that emphasizes the taxation of individuals and sole proprietorships. A study of taxation law cases will be explored, but course will concentrate on practical applications of federal tax form preparation as it per-

tains to gross income inclusions/exclusions, adjustments, deductions, credits, and penalties. A computerized tax program will be used by the students. Selected topics include: sale of capital assets, deferred compensation plans, IRS practice and procedures, and personal tax planning.

GBA 340 Intermediate Accounting I
Sem. 1 and 2. Class 3, cr. 3. Prerequisite: GBA 228 or equivalent.
Accounting theory and principles of asset valuation and income determination concentrating on cash, receivables, inventory, fixed assets, and intangible assets.

GBA 341 Intermediate Accounting II
Sem. 1 and 2. Class 3, cr. 3. Prerequisite: GBA 340 or equivalent.
Accounting theory and principles of liability measurement and stockholders equity valuation with emphasis on contingencies, contributed capital, retained earnings, pensions, leases, and financial statement analysis.

GBA 360 Advanced Income Taxation
Sem. 2. Class 3, cr. 3. Prerequisite: GBA 320 or equivalent.
An advanced course that emphasizes the taxation of C-Corporations, S-Corporations, Partnerships, Estates, and Trusts. Course will address tax planning opportunities for shareholders and partners as well as estate planning for individuals. Compliance with federal agencies and the preparation of appropriate tax forms will be explored. Also included is an overview of tax research using computerized retrieval and loose leaf tax services.

GBA 371 Advanced Accounting
Sem. 2. Class 3, cr. 3. Prerequisite: GBA 341 or equivalent.
Accounting theory and principles of business combinations, consolidated entities, foreign currency translation, and interim financial reporting.

GBA 372 Auditing
Sem. 1 or 2. Class 3, cr. 3. Prerequisite: GBA 341 or equivalent.
Principles, standards, and procedures applied in auditing the financial records and financial statements of an entity, including the legal aspects and ethical responsibilities of the accountant.

GBA 375 Governmental Accounting
Sem. 2. Class 3, cr. 3. Prerequisite: GBA 228 or equivalent.
Accounting theory and principles for nonprofit entities, governmental entities, and schools and hospitals. Distinguishes between for-profit and not-for-profit accounting concepts.

GBA 380 Accounting Information Systems
Sem. OC. Class 3, cr. 3. Prerequisites: GBA 341 and MGMT 201 or GBA 230 or equivalents.
Examines the systems for collecting and processing information necessary in planning decision making and the control of business organizations. It covers system development, documentation techniques, database systems, internal control, and application systems. Through projects, students will apply their systems expertise and improve their skills in using applications software such as spreadsheet programs. **Assumed ability:** Computers: Students who have had a semester of computer literacy or a similar course will find GBA 380 less difficult than students with no computer background.

GENERAL

GBG 127 Introduction to Business
Sem. 1, 2 and 3. Class 3, cr. 3.
An introductory course which acquaints students with existing operations and problems of business and industry. Includes the role of business as well as specific topics pertaining to establishing, operating, and managing a business.

GBG 224 Administrative Office Management
Sem. 1 and 2. Class 3, cr. 3. Prerequisite: GBG 127.
A survey of the general operations, work flow, methods, procedures, equipment, and costs of an administrative office of an organization. The course content includes an understanding of the necessary requirements for an efficient operation of both the small administrative office and/or a section of a larger administrative

unit. **Assumed Ability:** ENGLISH: Students who have the ability to perform at the level of ENGL 101 should enroll in this course. Students below that level of ability should not. READING: Students who have difficulty reading at the college level should be advised that this course requires a large amount of reading and comprehension.

GBG 260 Business Law

Sem. 1 and 2. Class 3, cr. 3. Prerequisites: GBG 127 and a minimum of six credit hours in additional courses in GBG, GBA , GBM, ECON or MGMT.

A course designed to give students an understanding of laws covering business transactions. Covers uniform commercial code, contracts, negotiable instruments, and sales of personal and real property. The laws governing partnerships, corporations, and individual entrepreneur are included. **Assumed Abilities:** READING: Students who have difficulty reading at the college level should be advised that this course requires a large amount of reading and comprehension.

GBG 270 Small Business and Entrepreneurial Ventures

Sem. 1, 2 and 3. Class 3, cr. 3.

A study of the basic principles of business operations associated with starting and managing small businesses. Major emphasis is given to strategic planning, organization, direction, and control of the small business. Topics will include marketing, financing, and management techniques. **Assumed Abilities:** ENGLISH: Students who have the ability to perform at the level of ENGL 101 should enroll in this course. Students below that level of ability should not. READING: Students who have difficulty reading at the college level should be advised that this course requires a large amount of reading and comprehension. SPEECH: Students are expected to make several presentations in this class and a course in speech communications prior to enrollment in this course would benefit them.

GBG 290 Independent Study

Sem. 1 or 2. cr. 1-6. Hours and subject matter to be arranged with General Business Section chairperson.

GBG/GBM 300 Business Internship

Sem. OC. Cr. 3. Prerequisite: GBG 127 and consent of instructor.

Open to students in the general business associate degree program, the Bachelor of Liberal Studies program or the bachelor's degree program in supervision who have completed a minimum of 45 semester hours of course work and have a high academic standing. **Assumed Abilities:** ENGLISH: Students who have the ability to perform at the level of ENGL 101 should enroll in this course. Students below that level of ability should not. READING: Students who have difficulty reading at the college level should be advised that this course requires a large amount of reading and comprehension.

GBG 333 Principles of Finance

Sem. 1 and 2. Class 3, cr. 3. Prerequisites: MA 153, ECON 210, ECON 251 or 252 and GBA 227 or MGMT 200.

Management of the financial affairs of the business; use of financial statements, tools, and concepts for measuring and planning for profitability and liquidity.

GBG 344 Business Ethics

Sem. 1, 2. Class 3, cr. 3. Prerequisites: ENGL 102, GBG 127, sophomore standing.

An examination of the situations and facts which give rise to ethical problems in a business setting, and the discussion of alternate courses of action which might and should be taken. The course introduces students to ethical concepts that are relevant to resolving moral issues in business; to the reasoning and analytical skills needed to apply ethical concepts to business decisions; to identify the moral issues involved in the management of specific problem areas in business; and to provide an understanding of the social and natural environments within which moral issues in business arise. **Assumed abilities:** READING AND COMPOSITION: Students who have difficulty reading and writing at the college level should be advised that this course requires a large amount of reading, comprehension, and writing. A term paper is required.

GBG /GBM 390 Undergraduate Special Problems

Sem. OC. Cr. 1-3 variable or class 3, cr. 1-3 (maximum 6 hrs.) Prerequisites: GBG 127, junior standing, and consent of instructor.
Individual participation, supervised reading, laboratory or field experiments, or research in special areas of the general business field. **Assumed Ability:** ENGLISH: Students who have the ability to perform at the level of ENGL 101 should enroll in this course. Students below that level of ability should not. MATHEMATICS: Students who have the ability to perform at the level of MA 111 should enroll in this course. Students below that level of ability should not. COMPUTERS: Students who have had a semester of computer literacy, or similar course, have usually found this course to be less difficult than students with no computer background. READING: Students who have difficulty reading at the college level should be advised that this course requires a large amount of reading and comprehension. SPEECH: Students are expected to make several presentations in this class and a course in speech communications prior to enrollment in this course would be a benefit to them.

GBG /GBM 490 Independent Study in Contemporary Issues of General Business

Sem. OC. Cr . Variable 1-3 or Class 3, cr. 1-3. Variable Title. (Maximum 6 hrs.). Prerequisites: Open to students with a major or concentration in general business area; senior standing; high academic standing, and consent of instructor. Minimum 90 credit hours.
Special subjects for investigation and experiment according to the individual student's interest and need. **Assumed Abilities:** ENGLISH: Students who have the ability to perform at the level of ENGL 101 should enroll in this course. Students below that level of ability should not. MATHEMATICS: Students who have the ability to perform at the level of MA 111 should enroll in this course. Students below that level of ability should not. COMPUTERS: Students who have had a semester of computer literacy, or another such course, have usually found this course to be less difficult than students with no computer background. READING: Students who have difficulty reading at the college level should be advised that this course requires a large amount of reading and comprehension. SPEECH: Students are expected to make several presentations in this class and a course in speech communications prior to enrollment in this course would benefit them.

HEALTH OFFICE ADMINISTRATION

GBH 200 Medical Terminology

Sem. 1 and 2. Class 3, cr. 3. Prerequisite: ENGL 101.
An introductory course which provides an overview of the terminology, including roots, prefixes, and suffixes, used in the medical/health professions fields. The various systems in the body are examined, such as the respiratory system, the cardiovascular system, and the nervous system, and the various parts in each system are identified. In addition, terminology as it relates to various symptoms, ailments and medical procedures is studied. The emphasis will be placed upon pronunciation and spelling of the various terms rather than upon an understanding of the operation of the various systems.

GBH 303 Principles of Health Insurance

Sem. 1. Class 3, cr. 3. Prerequisite: GBG 127 or consent of instructor.
This course consists of an introduction and overview of health insurance form preparation, filing, refiling, maintaining and follow up. Several types of insurance forms – Universal Medical (HIC), Superbills, Worker Compensation, Medicare, Medicaid, HMO's – will be covered. This course is supplemented by several hands-on experience activities and sample forms with the latest information on electronic claims, and hospital and physician billing especially related to Medicare and Medicaid.

INTERNATIONAL BUSINESS

GBI 301 Introduction to International Business

Sem. 1 and 2. Class 3, cr. 3. Prerequisites: GBG 127, ECON 210 or permission of instructor.

This course studies the subject of International Business which includes administration, marketing, finance and other broad managerial concerns at the international level. The conceptual base of the course is the basic economic fundamentals that affect trade, finance, and other business activities among countries. Government policies, social and cultural issues in international business activities are also discussed.

GBI 330 Foreign Trade Documentation and Procedures

Sem. OC. Class 3, cr. 3. Prerequisite: GBI 301 or consent of instructor.

Involves the student directly in the actual details of processing an export order from the time it is received until payment is received. Covers import/export shipping, documents, packaging, traffic procedures and insurance. The course is structured for the person who has had no previous foreign trade experience.

GBI 340 International Marketing

Sem. 1 or 2. Class 3, cr. 3. Prerequisite: Basic knowledge of marketing such as content of GBM 329 or consent of instructor.

The study of international marketing and business emphasizing the important aspects of cross-cultural communication and the factors of the international marketing mix. Some of the topics covered include cultural dynamics, political environment, international legal environment, global market opportunities, global marketing strategies, and related case presentations.

GBI 350 International Finance and Banking

Sem. OC. Class 3, cr. 3. Prerequisite: GBG 127 or permission of instructor.

This course will provide students with an awareness of the various issues, theories, and practices related to international finance. The course will provide insights into the role of international banking and finance with special attention given to exchange rates, importing and exporting, foreign markets, tourism, currency loans, capital budgeting for foreign projects, and policies which affect foreign funding.

GBI 370 International Trade

Sem. OC. Class 3, cr. 3. Prerequisite: ECON 252 or consent of instructor.

Aspects of international economic behavior of households, firms, and national governments. Develops and uses tools of economic theory to discuss the benefits and costs of international economic interdependence and the implications of increasing international linkages of households and firms on the role of national governments.

MARKETING

GBM 290 Independent Study

Sem. 1 or 2. cr. 1-6.

Supervised individual study and research in student's field of interest. The student will propose the investigation desired and, in conjunction with the instructor, develop the scope of the work to be completed. Hours and subject matter to be arranged with General Business Section.

GBM/GBG 300 Business Internship

Sem. OC. cr. 1-3. Prerequisites: GBG 127 and consent of instructor.

Open to students in the general business associate degree program, the Bachelor of Liberal Studies or bachelor's degree program in organizational leadership and supervision who have completed a minimum of 45 semester hours of course work and have a high academic standing. **Assumed Abilities:** ENGLISH: Students who have the ability to perform at the level of ENGL 101 should enroll in this course. Students below that level of ability should not. READING: Students who have difficulty reading at the college level should be advised that this course requires a large amount of reading and comprehension.

GBM 325 Marketing Research
Sem. 1 and 2. Class 3, cr. 3. Prerequisites: GBM 329, MA 153.
Systematic gathering, recording and analysis of data about problems relating to the marketing of goods and services. Topics covered include: choice of research design, methods of data collection, survey sampling, analysis and interpretation of data, and preparing the research report.

GBM 329 Principles of Marketing
Sem. 1, 2 and 3. Class 3, cr. 3.
Overview of marketing for all undergraduates designed to give a basic understanding of the principles of marketing and the operation of our marketing system. Marketing decision-making will explore the process of planning and executing the conception, pricing, promotion and distribution of ideas, goods, and services to create exchanges that satisfy individual and organizational objectives. **Assumed Ability:** READING: Students who have difficulty reading at the college level should be advised that this course requires a large amount of reading and comprehension.

GBM 380 Selling: Principles and Practices
Sem. 1. Class 3, cr. 3. Corequisite: GBM 329.
An introductory course which examines the phases of salesmanship: preapproach, approach, demonstration, objections, and closing. This course includes development of a sales force, the role of selling in our economy and the relationship of personal selling to other elements in the marketing mix. **Assumed Abilities:** READING: Students who have difficulty reading at the college level should be advised that this course requires a large amount of reading and comprehension. SPEECH: Students are expected to make several presentations in this class and a course in speech communications prior to enrollment in this course would be a benefit to them.

GBM 381 Principles of Advertising
Sem. 1. Class 3, cr. 3. Prerequisite: GBM 329.
Provides an understanding and evaluation of the advertising function within the modern business environment. Strategic advertising planning emphasizes the design, management, and integration of a firm's promotional strategy. Course covers history of advertising; the advertising agency; budgeting; advertising media including: print, broadcast, outdoor, specialty, and nonmedia; and the role of advertising in the marketing mix. **Assumed Abilities:** READING: Students who have difficulty reading at the college level should be advised that this course requires a large amount of reading and comprehension. MATHEMATICS: Students who have the ability to perform at the level of MA 111 should enroll in this course. Students below that level of ability should not.

GBM 385 Consumer Behavior
Sem. 1 and 2. Class 3, cr. 3. Prerequisite: GBM 329.
An interdisciplinary survey of consumer behavior theory focused on psychological, sociological, and cultural influences on consumer choice and use of products and services. Topics include personality, societal influences, information processing, information search, product choice, purchase, and postpurchase activities. Applications to promotion, product design, distribution, pricing, and segmentation strategies are also emphasized. **Assumed Abilities:** ENGLISH: Students who have the ability to perform at the level of ENGL 101 should enroll in this course. Student below that level of ability should not. READING: Students who have difficulty reading at the college level should be advised that this course requires a large amount of reading and comprehension.

GBM 388 Principles of Retailing
Sem. 1. Class 3, cr. 3. Prerequisite: GBM 329.
Functions of a retail establishment are examined. The topics covered include retail operations planning; buyer behavior, store design, location, and layout; organizing and staffing the retail firm; merchandise management; pricing strategies; promotional strategy; credit; financial management; and a discussion of the future of retailing. Significant developments in the social, economic, technological, and legal aspects of retailing are emphasized. **Assumed Abilities:** READ-

ING: Students who have difficulty reading at the college level should be advised that this course requires a large amount of reading and comprehension. MATHEMATICS: Students who have the ability to perform at the level of MA 111 should enroll in this course. Students below that level of ability should not.

GBM 389 Marketing Seminar
Sem. 1 and 2. Class 3, cr. 3. Prerequisites: GBM 329 and GBM 381.
Integration of marketing courses to relevant marketing problems through the analysis of cases and use of a marketing simulation. This capstone course is expected to establish the basis for strategic marketing, planning, and the practice of marketing decision making. **Assumed Abilities:** ENGLISH: Students who have the ability to perform at the level of ENGL 101 should enroll in this course. Students below that level of ability should not. MATHEMATICS: Students who have the ability to pergform at the level of MA 111 should enroll in this course. Students below that level of ability should not. READING: Students who have difficulty reading at the college level should be advised that this course requires a large amount of reading and comprehension. SPEECH: Students are expected to make several presentations and a course in speech communications prior to enrollment in this course would benefit them.

GENERAL STUDIES
(Also See Technical Writing)

GS 175 Information Strategies
Sem. 1 and 2. Class 2, cr. 0 or 1.
Designed to build and sharpen students' information-gathering skills. Guides students in developing systematic methods for finding, evaluating, and presenting information. Organization and use of electronic and print tools will be explained through discussion, hands-on exercises, and homework assignments.

GEOSCIENCES

GEOS 120 Introduction to Geography
Sem. 2. Class 3, cr. 3.
An introduction to the systematic study of location and spatial variation of natural features. Elements of place, time, distance, and area are considered in relation to the perception of environment, the organization of cultural activities and the utilization of natural resources.

GERMAN

GER 101 German Level I
Sem. 1E. Class 3, Lab. 1, cr, 3.
A beginning course in German. Introduction to the structure of the language. A certain number of basic grammatical rules and idiomatic constructions are covered, with illustrations of their application through simple, graduated textbook readings. Each lesson concentrates on specific rules and constructions with the objective of understanding through reading and the use of the language through oral exercises. Main objective: supply the students with tools to enable them to communicate in German at a basic level.

GER 102 German Level II
Sem. 2O. Class 3, Lab. 1, cr. 3. Prerequisite: GER 101.
Continuation of GER 101. Completion of study of basic grammar, proceeding in the same manner as GER 101. Reading with understanding and oral practice in the language. Main objective: to enable students to communicate in German at a basic-intermediate level.

GER 201 German Level III
Sem. 1O. Class 3, cr. 3. Prerequisite: GER 102.
Application of knowledge of grammar and idiomatic constructions to reading with understanding of graduated texts, moderate creative writing, and capability to communicate in German at an intermediate level (simple face-to-face conversation, capability to formulate questions and satisfy basic survival needs). Occasional grammatical review, when necessary. Introduction to German literature.

GER 202 German Level IV
Sem. 2E. Class 3, cr. 3. Prerequisite: GER 201.
Continuation of graduated readings with the objective of enlarging vocabulary and

ability to construct creative sentences. Occasional grammatical review, when necessary. Practice in composition and conversation at an intermediate to high level. Further work in German literature.

GRAPHICS

(See Technical Graphics)

HEALTH SCIENCE

Medical Laboratory Technology

Descriptions are for clinical courses taught through the Lakeshore Medical Training Program as the clinical component of the A.S. degree in Medical Laboratory Technology.

HSCI 252 Clinical Chemistry
Sem. 1 and 2. cr. 1-10. Prerequisite: Open only to MLT students enrolled in their clinical year. (May be repeated for credit.)
Basics of blood constituents, electrolyte function and water balance, enzyme analysis, quality control, principles of acid-base balance and lipid methodology. Presentation on macro and micro-laboratory automation, endocrinology, toxicology, therapeutic drug monitoring, testing profiles and clinical correlation are emphasized.

HSCI 253 Clinical Hematology
Sem. 1 and 2. cr. 1-10. Prerequisite: Open only to MLT students enrolled in their clinical year. (May be repeated for credit.)
Introduction to blood characteristics, blood count including cell counting, hematocrit reading, differential white cell counting, RBC/WBC abnormalities, anemias, leukemias and hemoglobinopathies. Clinical correlation of lab results with patient illness, automated methodologies and quality control procedures are presented. Blood coagulation, homeostasis coagulation factors will be presented along with bleeding disorders, and coagulation techniques.

HSCI 254 Clinical Immunohematology
Sem. 1 and 2. cr. 1-10. Prerequisite: Open only to MLT students enrolled in their clinical year. (May be repeated for credit.)
Introduction to principles of immunology and antibody formation and reaction. Includes discussion on blood grouping, Rh typing, detection of irregular antibodies, perinatal immunohematology, compatibility testing, blood components and blood donors. Also focus on adverse effects of transfusion, auto immunity, quality assurance and advanced problem solving techniques will be covered. Correlation of blood banking procedures and proficiency levels will be emphasized.

HSCI 255 Clinical Microbiology
Sem. 1 and 2. cr. 1-10. Prerequisite: Open only to MLT students enrolled in their clinical year. (May be repeated for credit.)
Topics include basic bacteriology and identification of common pathogens, media preparation, sterilization and inoculation. Other areas include staining, isolation and identification of atypical pathogenic organisms, and clinical applications of microbiological investigations. Proficiency levels are emphasized.

HSCI 257 Clinical Parasitology
Sem. 1 and 2. cr. 1-10. Prerequisite: Open only to MLT students enrolled in their clinical year. (May be repeated for credit.)
Focus is on parasites that invade man. Clinical correlation of laboratory results with patient illness and disease is emphasized.

HSCI 258 Clinical Serology
Sem. 1 and 2. cr. 1-10. Prerequisite: Open only to MLT students enrolled in their clinical year. (May be repeated for credit.)
Clinical application of techniques in the medical laboratory that perform serological investigations. Procedures performed are under the direct supervision of a registered technologist. Proficiency levels are established.

HSCI 260 Clinical Urinalysis
Sem. 1 and 2. cr. 1-10. Prerequisite: Open only to MLT students enrolled in their clinical year. (May be repeated for credit.)
General renal physiology and urine formation with emphasis on routine urinalysis and detection of disease. Labs will include physical, chemical, and microscopic examinations of urine. Proficiency levels are established.

HSCI 290 **Special Topics**
Sem. 1 and 2. cr. 1-10. Prerequisite: Open only to MLT students enrolled in their clinical year. (May be repeated for credit.)
Discussion of fundamentals of kidney function studies, examination of cerebrospinal fluid, semen, and synovial fluid. Readings related to journal articles, case studies, and / or a research project may be included.

HEALTH SCIENCE

Elementary Education Majors

H&S 320 **Health Education in the Elementary School**
Sem. 2. Class 3, cr. 3. Prerequisite: Admission to the Teacher Education Program; Restricted to Education majors only.
The problems of physical health, mental health, and safety of the school-aged child are considered, with emphasis on ways in which the elementary teacher meets the responsibilities and opportunities for promoting pupil health.

HISTORY

HIST 102 **Introduction to the Ancient World**
Sem. OC. Class 3, cr. 3.
A history of the ancient world (Near East, Greece, and Rome) from its prehistoric origins to its dismemberment in the early Christian era. It is designed to meet the needs of the beginning student of European and world history.

HIST 103 **Introduction to the Medieval World**
Sem. OC. Class 3, cr. 3.
Barbarians, kings, queens, peasants, witches, saints, teachers, students, heretics, Moslems, Jews, Christians, love, death, monks, farm life, city life, ordinary men, women, and children as Europe develops from A.D. 500 to 1500.

HIST 104 **Introduction to the Modern World**
Sem. 1 and 2. Class 3, cr. 3.
Traces the expansion of Europe into the Americas, Africa, and Asia. The French Revolution, nationalism, and the development of Western European states from the era of the Reformation to the present are studied.

HIST 151 **American History to 1877**
Sem. 1 and 3. Class 3, cr. 3.
A study of the development of American political, economic, and social institutions from the early explorations and Colonial settlements through Reconstruction.

HIST 152 **United States Since 1877**
Sem. 2 and 3. Class 3, cr. 3.
A study of the growth of the United States from 1877 to the present. The new industrialism, agrarian problems, depression, the New Deal, the two world wars, the Cold War, and similar topics are analyzed.

HIST 241 **Asia in the Modern World**
Sem. OC. Class 3, cr. 3.
The response of China, Japan, India, and Southeast Asia to the coming of the West in the modern times is surveyed from approximately 1600 to the present. The effect of Western ideas and machines on Asia's traditional society is stressed.

HIST 290 **Russia: Yesterday, Today and Tomorrow**
(POL 290, RUSS 289) Sem. 2. Class 3, cr. 3.
A comprehensive interdisciplinary view of Russia, stressing those issues in the political, economic technological, and cultural spheres that are most relevant to the current situation. Team-taught course accessible to beginning undergraduates.

HIST 358 **The American Business System**
Sem. OC. Class 3, cr. 3.
A study of the historical development of business methods and institutions in the United States from colonial times to the present. Thematic units cover merchant capitalism, money and banking, entrepreneurs and corporations, industry, government, multinationals, and information-age business.

HIST 367 **20th Century American History**
Sem. OC. Class 3, cr. 3.
A survey of 20th Century American history, covering major political and economic developments and related intellectual movements. A parallel consider-

ation of foreign affairs traces the emergence of America as a world power and the effects of her new status on the Western Hemisphere, Europe, and Asia.

HIST 383 Recent American Constitutional History
Sem. OC. Class 3, cr. 3.
Intensive study of constitutional questions and Supreme Court answers from the period of the Warren Court to present. Particularly, emphasized are the areas of segregation, civil rights, and civil liberties and guarantees for personal rights.

HIST 386 History of American Foreign Relations
Sem. OC. Class 3, cr. 3.
The history of American foreign relations from the late Colonial period to the present. The development of traditional policies, territorial expansion, and reaction to great power status and the Cold War are some of the topics discussed.

HIST 467 Recent American History
Sem. OC. Class 3, cr. 3. Prerequisites: HIST 151 and HIST 152.
A study of 20th Century American history into the Depression Thirties. Domestic political and social developments are traced from 1914 to 1939, while diplomatic and military events are covered from the early twentieth century to 1933. Particular attention is given to First World War and Great Depression.

HIST 468 Contemporary America
Sem. OC. Class 3, cr. 3.
An examination of American history since the 1930s. Political, economic, and social developments are covered for the period since 1939, while diplomatic and military are reviewed since 1933.

HIST 492 Seminar in Historical Topics
Sem. 1 and 2. Class 3, cr. 3. (May be repeated once for credit.) Restricted to undergraduates: 20 student maximum.
Course description will vary according to specific topic proposed to study.

HIST 493 Interdisciplinary Undergraduate Seminar
Sem. OC. Class 1 or 3, cr. 1-3. Same as PHIL 493, POL 493, PSY 493, SOC 493, and THTR 493. May be repeated for credit.
An undergraduate seminar devoted to an interdisciplinary examination of social, economic, political, and intellectual movements, using faculty resources of participating departments. Subject matter will vary. Each offering of the seminar will be approved by a committee of department heads from the sponsoring departments.

DUAL LEVEL
Undergraduate-Graduate Course

HIST 590 Directed Reading in History
Sem. 1 and 2. Cr. 1-3. May be repeated for credit.
A reading course directed by the instructor in whose field of specialization the content of the reading falls. Approval of each reading project must be secured from the department.

INDUSTRIAL ENGINEERING TECHNOLOGY

IET 104 Industrial Organization
Sem. 1, 2 and 3. Class 3, cr. 3.
A detailed survey of how the functional activities within a manufacturing enterprise, including product design, development and specification, purchasing, manufacturing planning, production and inventory control, and administrative support, are planned, organized, staffed, controlled and directed by management with consideration of personnel, safety, policy and human factors in order to achieve productivity objectives.

IET 202 Principles of Industrial Robotics
Sem. OC. Class 2, Lab. 3, cr. 3 or Class 3, cr. 3. Restricted to 3rd or 4th semester AS-IET students or consent of the instructor.
Applications of robotic principles with emphasis on the evaluation, selection and installation of robotic technology in manufacturing systems.

IET 204 Techniques of Maintaining Quality

Sem. 1 or 2. Class 3, cr. 3. Prerequisites: MA 154 and STAT 301.

An analysis of basic quality control concepts including quality responsibility, quality improvement techniques, fundamentals of statistics and probability, control charts for variables and attributes, acceptance sampling and standard sampling plans, quality costs and total quality management.

IET 224 Production Planning and Control

Sem. 1 or 2. Class 2, Lab. 2, cr. 3 or Class 3, cr. 3. Prerequisites: IET 104,MA 154 and CPT 107.

Pre-production planning of the most economical methods, machines, operations, and materials for the manufacture of a product. Planning, scheduling, routing, and detailed procedure of production control including MRP I and II.

IET 250 Fundamentals of Production Cost Analysis

Sem. 1 or 2. Class 3, cr. 3. Prerequisites: IET 104 and CPT 107.

Surveys of fundamental mechanics of accounting, principles of account classification, financial and operating statements, and the generation of cost data according to cost accounting principles. Surveys the generation of cost data according to the principles of engineering economy. Examines applications of cost accounting data and engineering economy cost data to specific management decision areas through selected case problems.

IET 252 Techniques for Indirect Labor Control

Sem. 1 or 2. Class 3, cr. 3. Prerequisites: IET 104, IET262 and IET266.

The study of the characteristics and importance of indirect and service sectors of our business, industrial, and government economy. Topics covered in the course include size and cost factors of indirect and service lab, problems encountered in measurement and control, human relations aspects associated with employees in these areas, selling proposals, and implementing programs.

IET 262 Motion Study and Work Methods

Sem. 1 or 2. Class 2, Lab. 2, cr. 3 or Class 3, cr. 3. Prerequisite: IET 104.

The study of the various techniques of motion study including process charts, operation charts, multiple activity charts, micro and memo motion study, therbligs, the video camera, along with actual practice in their use. Study and application of the basic principles used to develop better methods of performing work.

IET 266 Work Measurement and Incentives

Sem. 2. Class 2, Lab. 2, cr. 3 or Class 3, cr. 3. Prerequisite: IET 104.

A study of the fundamentals of time study and work measurement with actual practice in their use. Includes stop watch time study, measuring work with video camera, the establishment of allowances by both stopwatch and work sampling studies, the establishment and use of predetermined time values, and the construction and use of formulae for work measurement

IET 268 Plant Layout

Sem. 2. Class 3, cr. 3. Prerequisite: IET 104.

Arrangement of stock, machine, layout of aisles, and use of space, and material handling for the highest efficiency of production.

IET 296 Industrial Technology Case Problems

Sem. 2. Class 2, cr. 2.

Application of theories developed in the several industrial technology courses to select general case problems–to provide practice in the integration of principles.

IET 299 Special Studies in Industrial Engineering Technology

Sem. OC. cr. 1-3. Consent of department required.

Opportunity to study specific problems in the field of Industrial Engineering Technology under the guidance of a qualified faculty member within the department.

IET 301 Cost Evaluation and Control

Sem. 1. Class 3, cr. 3. Prerequisite: IET 250.

Develops the tools for designing, installing, and improving cost systems in industry, including the establishment of basic standards. Cost systems are examined with reference to estimating, scheduling, facilities planning, and making economic evaluations. Microcomputers will be utilized in this course.

IET 312 Materials Handling
Sem. 1 or 2. Class 3, cr. 3. Prerequisite: IET 268.
A survey of materials handling elements, the unit load, packaging, bulk handling, the economics of materials handling, improving existing handling methods, justification for handling equipment, special handling techniques, and the management of the materials handling division in the industrial organization.

IET 364 Total Quality Control
Sem. 1 or 2. Class 3, cr. 3. Prerequisite: IET 204.
Determining customer needs and wants, implementing into a design during production, monitoring field performance, and feeding back quality information to further improve the quality system.

IET 451 Monetary Analysis for Industrial Decisions
Sem. 1 or 2. Class 3, cr. 3 or Class 2, Lab. 2, cr. 3. Prerequisite: IET 104. Not open to students who have had IET 250.
An introduction to the time value of money and how it relates to capital investments, equipment replacement, production cost, and various engineering technology alternatives.

INTERDISCIPLINARY STUDIES

IDIS 280 Women's Studies: An Introduction
Sem. 3. Class 3, cr. 3.
An introductory survey of the concepts and research data in the new scholarship on women. Topics covered include biology, sexuality, socialization, family and work, creativity, and politics.

IDIS 435 Great Issues I
Sem 1 and 2. Class 3, cr. 3.
A consideration of major issues affecting humankind from the perspective of our total experience, with an emphasis on the historical unfolding of those issues and great thinkers' answers to them. Focus includes discussions of moral decision-making, political systems, aesthetics, religion and spirituality, our use of symbols, and the character of human nature.

IDIS 436 Great Issues II
Sem. 1 and 2. Class 3. cr. 3. Need not be preceded by IDIS 435.
A continuation of IDIS 435, examining the further development, in a historical framework, of those issues considered enduring and important. Focus on the development of the diversity of ideas and perspectives in the modern era, including questions of political organization, religion and spirituality, the evolution of science, ethics and modernity, the exercise of power, and the uses of rationality.

IDIS 490 Directed Reading in Interdisciplinary Studies
Sem. 1, 2, and 3. cr. 1-4.
Reading to be done under the direction of the instructor in the particular interdisciplinary field of specialization.

INTERNATIONAL BUSINESS

(See General Business)

MANAGEMENT

MGMT 200 Introductory Accounting
Sem. 1, 2 and 3. Class 3, cr. 3 or Class 2, Lab. 2, cr. 3. Not open to students with credit in GBA 227.
An examination of the basic concepts, procedures, and conventions which underlie financial reporting. Construction and uses of financial statement data.

MGMT 201 Management Accounting I
Sem. 1 and 2. Class 3, cr. 3. Prerequisite: MGMT 200 or equivalent. Not open to students with credit in GBA 230.
Accounting for management planning and control, including cost accounting, budgeting, accounting control system, and use of accounting information in management decisions.

MGMT 445 Investments
Sem. OC. Class 3, cr. 3. Prerequisite: ECON 210 or ECON 252. No credit for students in the School of Management.
Examination of investment alternatives relevant to individual investors. Operations of markets in which securities are traded. Special attention to stocks, bonds, options, and investment companies. Theory and application of security valuation and portfolio selection techniques. Evaluation of investment performances.

MARKETING

(See General Business)

MATHEMATICAL SCIENCES

MA 111 Algebra
Sem. 1, 2 and 3. Class 3, cr. 3. Prerequisite: GNC 064 or equivalent. Not available for credit toward graduation in the School of Science.
A review and strengthening of fundamental concepts and skills of algebra, including linear, quadratic, and rational functions, graphing, and problem solving. Pocket calculators used. This course satisfies the one unit of alegbra required for admission.

MA 130 Mathematics for Elementary Teachers I
Sem. 1. Class 3, cr.3. Designed for prospective elementary/middle school teachers. (Not available for credit toward graduation in the School of Science.)
Numeration systems: operations, algorithms, properties, elementary set and number theory, relations and functions, estimation and nummeracy.

MA 131 Mathematics for Elementary Teachers II
Sem. 2. Class 3, cr. 3. Prerequisite: MA 130. (Not available for credit toward graduation in the School of Science.)
Basic concepts of geometry, transformations in the plane, congruence and similarity, measurement as process, the metric system.

MA 132 Mathematics for Elementary Teachers III.
Sem. 1 and 2. Class 3, cr. 3. Prerequisite: MA 131. (Not available for credit toward graduation in the School of Science.)
Counting principles, permutations, combinations, experimental and theoretical probability, statistics, graphs, stem-and-leaf and box plots, measures of central tendency, dispersion, the normal distribution.

MA 152 College Algebra for Liberal Arts
Sem. 1. Class 3, cr. 3. Prerequisite: 2 years of high school mathematics including 1 year of algebra or MA 111 or equivalent.
This is a course in college algebra for students who do not need the technical skills required for those who are planning to continue with calculus. There will be emphasis on applied problem solving using functions and graphing techniques.

MA 153 Algebra and Trigonometry I
Sem. 1, 2 and 3. Class 3, cr. 3. Prerequisites: 1 year of college prep/academic algebra or MA 111 or equivalent and 1 year of high school geometry or GNC 065 or equivalent. 1 year of high school mathematics beyond algebra is recommended. Not open to students with credit in MA 151. Does not carry credit toward graduation in the schools of Engineering or Science.
MA 153-154 is a two-semester version of MA 151. MA 153-154 covers algebra and trigonometry for students with inadequate preparation for calculus.

MA 154 Algebra and Trigonometry II
Sem. 1, 2 and 3. Class 3, cr. 3. Prerequisites: MA 153 and GNC 065 or 3 years of high school mathematics including Alegbra I and II and geometry. Not open to students with credit in MA 151. Does not carry credit toward graduation in the schools of Engineering or Science.
Continuation of MA 153.

MA 161 Plane Analytic Geometry and Calculus I
Sem. 1. Class 5, cr. 5. Prerequisites: MA 153-154 (or MA 151) or demonstrated competency in algebra and trigonometry at the level of MA 153-154 (or MA 151).
Plane analytic geometry and differential calculus, and an introduction to integral calculus of functions of a single variable, with applications.

MA 161P Plane Analytic Geometry and Calculus I

Sem. 1. Class 5, Lab 2, cr. 5. Prerequisites: MA 153-154 (or MA 151) or demonstrated competency in algebra and trigonometry at the level of MA 153-154 (or MA 151). No previous computer experience required.

MA 161P and MA 162P together cover the same concepts and topics as MA 161 and MA 162. MA 161P-162P uses a learning environment which combines the use of cooperative and computer laboratory experiences to foster an active learning environment.

MA 162 Plane Analytic Geometry and Calculus II

Sem. 2. Class 5, cr. 5. Prerequisite: MA 161.

Continuation of MA 161. Integral calculus of functions of a single variable, vectors, sequences and series, and polar coordinates.

MA 162P Plane Analytic Geometry and Calculus II

Sem. 2. Class 5, Lab. 2, cr. 5. Prerequisite: MA 161P or MA 161 or equivalent with consent of instructor.

Continuation of MA 161P.

MA 223 Introductory Analysis I

Sem. 1 and 2. Class 3, cr. 3. Prerequisites: Math 154 or 3 years of high school mathematics including algebra I and II, one year of geometry and at least one-half semester of trigonometry. Not open to students with credit in MA 161.

Differential calculus of one variable. Applications to problems in the biological and social sciences and technology.

MA 223P Introductory Analysis I

Sem. 1 and 2. Class 3, Lab. 2, cr. 3. Prerequisite: Same as for MA 223. No previous computer experience required.

MA 223P and MA 224P together cover the same concepts and topics as MA 223 and MA 224. MA 223P - MA224P use a learning environment which combines the use of cooperative and computer laboratory experiences to foster an active learning environment.

MA 224 Introductory Analysis II

Sem. 1 and 2. Class 3, cr. 3. Prerequisite: MA 223 or MA 223P. Not open to students with credit in MA 162.

Integral calculus of one variable; introduction to differential equations. Applications to problems in the biological and social sciences and technology.

MA 224P Introductory Analysis II

Sem. 2. Class 3, Lab. 2, cr. 3. Prerequisite: MA 223P or MA 223 or equivalent with consent of instructor.

Continuation of MA 223P.

MA 261 Multivariate Calculus

Sem. 1. Class 4, cr. 4. Prerequisite: MA 162 or MA 261P.

Continuation of MA 161-162. Parametric equations and calculus, solid analytic geometry, differential and integral calculus of functions of two or more variables, and an introduction to vector calculus.

MA 261P Multivariate Calculus

Sem. 1. Class 4, Lab. 2, cr. 4. Prerequisite: MA 162P or MA 162 or equivalent with consent of instructor.

Covers the same concepts and topics as MA 261, using a cooperative learning environment which combines the use of cooperative and computer laboratory experiences to foster an active learning environment.

MA 262 Linear Algebra and Differential Equations

Sem. 2. Class 4, cr. 4. Prerequisite: MA 261 or MA 261P.

Linear algebra and elements of differential equations with applications.

MA 262P Linear Algebra and Differential Equations

Sem. 2. Class 4, Lab. 2, cr. 4. Prerequisite: MA 261P or MA 261 or equivalent with consent of instructor.

Covers the same concepts and topics as MA 262. Uses a cooperative learning environment which combines the use of cooperative and computer laboratory experiences to foster an active learning environment.

MA 351 Elementary Linear Algebra
Sem. OC. Class 3, cr. 3. Prerequisite: MA 261 or MA 261P.
Systems of linear equations, finite dimensional vector spaces, matrices, determinants, applications to analytic geometry.

MECHANICAL ENGINEERING TECHNOLOGY

MET 102 Production Design and Specifications
Sem. 2. Class 1, Lab. 5, cr. 3. Prerequisites: TG 110, MET 160 or MET 162 and MET 163.
The design, evaluation, and documentation of engineering specifications required for manufacturability and assembly are introduced. Emphasis is on CAD-based details, assemblies, design layouts, equipment installations and related industrial practices.

MET 111 Applied Statics
Sem. 1 or 2. Class 2, Lab. 2, cr. 3. Prerequisite: MA 153, MET 162 or MET 160; Corequisite: MA 154.
Force systems, resultants and equilibrium, trusses, frames, beams, and shear and moments in beams are studied.

MET 141 Materials I
Sem. 1 or 2. Class 2, Lab. 2, cr. 3.
An overview of structures, properties, and applications of metals, polymers, ceramics, and composites commonly used in industry is presented. Problem solving skills are developed in the areas of materials selection, evaluation, measurement and testing.

MET 142 Manufacturing Processes I
Sem. 1 or 2. Class 2, Lab. 3, cr. 3. Prerequisite: MET 141.
Basic casting, forming and joining processes are surveyed. The course emphasizes the selection and application of various processes.

MET 162 Computational Analysis Tools in MET
Sem. 1 or 2. Lab. 3, cr. 1. Credit will not be granted for both MET 162 and MET 160.
Instruction is given in analytical and computational problem-solving techniques. The electronic calculator, the factor label method of unit conversions, and engineering graphs are used to solve technical problems in Mechanical Engineering Technology.

MET 163 Computer Application Tools in MET
Sem. 1 or 2. Class 1, Lab. 2, cr. 2. Credit will not be granted for both MET 163 and MET 160.
The computer is used to solve technical problems in Mechanical Engineering Technology. Emphasis is on spreadsheet analysis, graphics, and generation of technical reports through the integrated use of computer software packages.

MET 211 Applied Strength of Materials
Sem. 1. Class 3, Lab. 2 , cr. 4. Prerequisite: MET 111, MET 163 or MET 160; Corequisite: MA 223.
The principles of strength, stiffness and stability are introduced and applied primarily to mechanical components.

MET 212 Applications of Engineering Mechanics
Sem. 2. Class 4, cr. 4 or Class 3, Lab. 2, cr. 4. Does not carry credit toward graduation in mechanical engineering technology. Prerequisite: MA 154.
Applications of engineering mechanics are introduced, based on an elementary expansion of Newtonian physics as applied to static and dynamic force systems. Internal stresses and strains produced by these forces in selected machine elements are considered. Work, energy, and power are discussed.

MET 213 Dynamics
Sem. 1. Class 2, Lab. 2, cr. 3. or Class 3, cr. 3. Prerequisite: MET 111; Corequisite: MA 223.
Kinematics and kinetics principles of rigid-body dynamics are introduced. Emphasis is on the analysis of bodies in plane motion.

MET 214 Machine Elements
Sem. 2. Class 3, cr. 3. Prerequisites: MET 160 or MET 163, MET 211 and MET 213.
The methods developed in statics, dynamics and strength of materials are applied to the selection of basic machine components.

The fundamental principles required for the selection of individual elements that compose a machine are developed. Selected course topics are included as computer exercises.

MET 220 Heat/Power
Sem. 2. Class 2, Lab. 2, cr. 3 or Class 3, cr. 3. Prerequisites: MET 160 or MET 162 and MET 163, PHYS 218; Corequisite: MA 223.
Heat / Power is an introduction to the principles of thermodynamics and heat transfer. Basic thermodynamic processes are used to evaluate the performance of energy-based systems such as internal combustion engines, power plants and refrigeration equipment.

MET 230 Fluid Power
Sem. 1. Class 2, Lab. 2, cr. 3. Prerequisites: MET 111 or PHYS 218; MET 160 or MET 163; corequisite: MA 223.
This course consists of the study of compressible and incompressible fluid statics and dynamics as applied to hydraulic and pneumatic pumps, motors, transmissions, and controls.

MET 242 Manufacturing Processes II
Sem. 1. Class 2, Lab. 2, cr. 3. Prerequisites: MET 141, MA 151 or MA 154 or MET 162, and MET 163.
This course surveys the manufacturing processes and tools commonly used to convert cast, forged, molded and wrought materials into finished products. It includes the basic mechanisms of material removal, measurement, quality control, assembly processes, safety, process planning and automated manufacturing.

MET 299 Mechanical Engineering Technology
Sem. OC. Cr. 1-3. Prerequisite: Mechanical Engineering Technology major.
Independent project or laboratory work is conducted under the supervision of appropriate MET faculty. Hours and subject matter must be arranged by instructor and approved by MET Curriculum Subcommittee.

MET 302 CAD in the Enterprise
Sem. 1 or 2. Class 1, Lab. 5, cr. 3. Prerequisite: MET 102, junior status or consent of instructor.
Theory and practice of management, use and integration of computer aided design systems, and related engineering tools and practices are studied as they are applied in the industrial enterprise. Emphasis is on course projects.

MET 313 Applied Fluid Mechanics
Sem. 2. Class 3, cr. 3. Prerequisites: MET 230, MET 320 and MA 224.
The fundamental principles of fluid mechanics are developed, including properties of fluid, pressure, hydrostatics, dynamics of fluid flow, friction losses, and sizing of pipes. Emphasis is on problem solving.

MET 315 Applied Mechanism Kinematics and Dynamics
Sem. 1 or 2. Class 2, Lab. 2, cr. 3. Prerequisites: MET 213 and MET 214.
Graphical and semigraphical methods are used to determine displacements, velocities, and accelerations in common mechanisms. Cam followers and basic motions; static and dynamic force analysis; static and dynamic shaft balancing; and relevant microcomputer software are also considered.

MET 320 Applied Thermodynamics
Sem. 1. Class 3, cr. 3. Prerequisites: MET 220 and MA 223.
Following a review of fundamental concepts advanced power and refrigeration cycles are analyzed. Applications such as gas mixtures, air-vapor mixtures, and chemical reactions of combustion processes are presented.

MET 344 Materials II
Sem. 1. Class 3, cr. 3. Prerequisites: MET 141 and CHEM 111.
Metals and polymers are studied. Topics include the bonding of atoms; the structures of crystals and polymers; the coldworking, alloying, and heat treating of metals; and the physical behavior of plastics. Course emphasis is on the development and control of material properties to meet engineering requirements and specifications.

MET 382 Controls and Instrumentation for Automation
Sem. 1. Class 2, Lab. 2, cr. 3. Prerequisites:MA 154, CPT 175E and PHYS 219.
Study of the procedures and techniques essential to industrial measurement and transmission of data is provided in the areas of machine control, process control, and automated testing. Concepts of hysteresis, repeatability, weighted signals, span, suppression, range and closed loop control are emphasized.

MET 400 Mechanical Design
Sem. 2. Class 2, Lab. 2, cr. 3. Prerequisites: CPT 175E, MET 320 and MET 214.
Theory and practice in the process of mechanical design is presented. Cross-disciplinary aspects, decision-making, group dynamics, customer focus, and other techniques and philosophies used in the industrial design process will be studied. Emphasis is on multiple open-ended projects.

MET 411 Introduction to the Finite Element Method
Sem. 1. Class 2, Lab. 2, cr. 3 or Class 1, Lab. 4, cr. 3. Prerequisites: MET 211 MET 213, PHYS 218, PHYS 219 and MA 224.
The finite element method is introduced with emphasis on modeling and interpretation of results. Linear static problems are solved using commercial FEA software and FEA results are verified through laboratory tests and/or theoretical calculations. Topics include trusses, frames, plane stress/strain, torsion, 3D structures, buckling and natural frequency/mode shape analyses.

MET 485 Control Systems Components
Sem. 2. Class 2, Lab. 3, cr. 3. Prerequisite: MET 382 or permission of the instructor.
Process control components, process characteristics, control modes, and control systems will be discussed.

MET 499 Mechanical Engineering Technology
Sem. OC. cr. 1-3. Prerequisite: Mechanical Engineering Technology major.
Independent project or study of a special topic is conducted under the supervision of appropriate MET faculty. Hours and subject matter must be arranged with the instructor and approved by the MET curriculum subcommittee before enrolling in the course.

MUSIC

MUS 250 Music Appreciation
Sem. 1 and 2. Class 2, cr. 3.
An introduction to the understanding of music. How to listen to its materials. A study of media, forms, styles, and composers through recorded, live, and film media. Methods used in the structure of music as well as the aesthetic values present in music are also emphasized.

MUS 324 Teaching Music in the Elementary School
Sem. 1 and 2, Class 3, cr. 3. Prerequisite: TE.
Develops basic musicianship through singing, playing instruments, reading and writing music, listening and moving to music. Surveys music teaching methods and materials. Includes lesson planning, experiences in teaching, and observation of children in music classes.

NURSING

NUR 118 Perspectives in Nursing
Sem. 1 and 2. Class 1, cr. 1. Prerequisite: admission to nursing program.
Introduction to contemporary nursing practice through exploration of nursing's historical development, legal and ethical aspects of the nurse/client relationship, and practice of the nursing role.

NUR 119 Nursing Assessment
Sem. 1 and 2. Class. 1, Lab. 3, cr. 2. Prerequisite: admission to nursing program.
Assessment techniques to establish a client data base are demonstrated and practiced. Techniques of interviewing, inspection, auscultation and selected palpation are presented as the methods used to determine client health status.

NUR 123 Nursing Foundations
Sem. 1 and 2. Class 2, Lab. 6, cr. 4. Prerequisites or corequisites: NUR 118, NUR 119, BIOL 213, PCTX 201 or consent of instructor.
The nursing process is introduced and utilized as the framework for promotion of client health in the context of human

needs maintenance / fulfillment. The concepts of holistic client care and adaptation along the health-illness continuum are emphasized. Laboratory experience is provided in campus laboratory and clinical settings.

NUR 125 Career Transition to Associate Degree Nursing
Sem. 1 and 2. Class 3, cr. 3. Prerequisite: Admission to nursing program, active LPN licensure.
The differences between the LPN and ADN roles are discussed. The nursing process is utilized to establish plans of care and the teaching / learning process is employed to develop teaching plans for clients. The role components of the associate degree are explored.

NUR 208 Lifespan Human Development
Sem. 1 and 2. Class 2, cr. 2. Prerequisite: admission to the nursing program.
A study of the continuity of development throughout the lifespan to gain an understanding of the influences of heredity and environment on the individual. Nursing implications of developmental changes are identified.

NUR 214 Introduction to Pathophysiology
Sem. 1 and 2. Class 3, cr. 3. Prerequisites: BIOL 213 and BIOL 214 or consent of instructor.
An introduction to pathophysiological alterations in major regulatory mechanisms of the body. Provides a foundation for understanding general nursing practice, various diagnostic procedures, and selected therapeutic regimens.

NUR 230 Personal Expression in Nursing
Sem. 1 and 2. Class 1, cr. 1. Prerequisite: admission to nursing program.
Personal expression through verbal and nonverbal communications is explored. The process of communicating thoughts and information effectively is emphasized.

NUR 231 Nursing Care of Developing Families
Sem. 1 and 2. Class 2, Lab. 3, cr. 3. Prerequisites: NUR 118, NUR 119, NUR 123 and PCTX 201. Prerequisite or corequisite: NUR 208.
The nursing process is utilized to assist individual members of childbearing and childrearing families toward the promotion of optimal health. Health promotion and protective measures related to childbearing, childrearing and family dynamics are emphasized. Clinical experiences are provided in a variety of settings.

NUR 232 Nursing Care of Infants, Children and Adolescents
Sem. 1 and 2. Class 2, Lab. 3, cr. 3. Prerequisites: NUR 118, NUR 119, NUR 123 and PCTX 201. Prerequisites or corequisites: NUR 208, NUR 214 and BIOL 221.
The nursing process is utilized to assist individual clients toward the promotion of optimal health during the periods of infancy, childhood, and adolescence. Health promotion and supportive measures are emphasized. Clinical experiences are provided in a variety of settings.

NUR 233 Nursing Care of Adults
Sem. 1 and 2. Class 2, Lab. 6, cr. 4. Prerequisites: NUR 118, NUR 119, NUR 123 and PCTX 201. Prerequisites or corequisites: NUR 214 and BIOL 221.
The nursing process is utilized to assist individual adult clients toward the promotion of optimal health. Health needs / problems of adulthood are emphasized. Experiences in a variety of clinical settings are provided.

NUR 234 Psychosocial Nursing Care of Family Members
Sem. 1 and 2. Class 2, Lab. 6, cr. 4. Prerequisites: NUR 118, NUR 119, NUR 123, BIOL 213 and BIOL 214. Prerequisites or corequisites: NUR 230, NUR 231 and NUR 214.
The nursing process is utilized to assist family members experiencing dysfunctional interactions toward achievement of optimal health. Therapeutic modalities that reduce dysfunctional thoughts, feelings or behaviors are emphasized. Clinical experiences are provided in a variety of settings.

NUR 235 Nursing Issues
Sem. 1 and 2. Class 1, cr. 1. Prerequisite: NUR 118.
Nursing, health care, and societal issues are explored. Legal and ethical problems confronting contemporary nursing practice are examined.

NUR 236 Transition to Nursing Practice
Sem. 1 and 2. Class 1, cr. 1. Prerequisites: NUR 118 and NUR 230. Prerequisites or corequisites: NUR 235 and NUR 237.
The role transition from nursing student to graduate nurse is explored in relation to employment expectations and role responsibilities. Personal accountability as a practicing member within the discipline of nursing is emphasized.

NUR 237 Nursing Synthesis
Sem. 1 and 2. Class 2, Lab. 12, cr. 6. Prerequisites: NUR 214, NUR 233 and BIOL 221. Prerequisites or corequisites: NUR 230, NUR 231, NUR 232, NUR 234, NUR 235, NUR 236 and F&N 303.
Nursing process is utilized to assist clients toward the promotion of optimal health within their contextual environment. Nursing care and client care management of adults with complex health care needs/problems are emphasized. Clinical experiences are provided in a variety of settings.

NUR 355 Applied Thanatology
Sem. 1 and 2. Class 3, cr. 3. Prerequisites: None
Exploration of the basic needs of the dying individual and the family. Identification of the appropriate and supportive nursing intervention within a social and cultural framework will enable students to better appreciate and apply various psychological therapeutic interventions for the client and the family resulting in better coping and/or adaptive behaviors within the system.

NUR 378 Growing Old in a New Age
Sem. 1 and 2. Class 3, cr. 3. Prerequisites: None.
Concepts and issues of aging are explored to enhance the understanding of the impact of aging on society. The processes of aging and old age as stages of life are identified.

NUR 399 Special Assignments
Sem. 1 and 2. cr. 1-6.
Reading, discussion, written reports and practice in special areas of nursing.

ORGANIZATIONAL LEADERSHIP AND SUPERVISION

OLS 240 Labor Relations Problems
Sem. 1 or 2. Class 3, cr. 3.
Problems of workers with possible solutions are suggested by organized labor and management. Regulations concerning management, labor, the collective bargaining agreement, grievance and arbitration procedures.

OLS 252 Human Behavior in Organizations
Sem. 1, 2 and 3. Class 3, cr. 3.
A survey of the concepts which provide a foundation for the understanding of individual and group behavior in organizations of work, with special emphasis on typical interpersonal and leadership relationships.

OLS 274 Applied Leadership
Sem. 1, 2 and 3. Class 3, cr. 3.
Introduction to and overview of the fundamental concepts of supervision. Emphasis is placed on the supervisor's major functions and essential areas of knowledge, relations with others, and personal development.

OLS 331 Occupational Safety and Health
Sem. 1 or 2. Class 3, cr. 3.
A presentation of those aspects of occupational safety and health which are most essential to the first-line supervisor. Emphasis is placed on developing an understanding of the economic, legal and social factors related to providing a safe and healthful working environment.

OLS 368 Legislation Affecting Industrial Relations
Sem. OC. Class 3, cr. 3.
Wage contracts and payments, workmen's compensation and insurance, injunction, strikes and boycotts, and statutes affecting labor.

OLS 372 Staffing and Performance Appraisal

Sem. 1 or 2. Class 3, cr. 3. Prerequisite: OLS 376.

An applications-oriented study of the principles and issues in staffing organizations and appraising employee performance with special emphasis on the effect of legislation and collective bargaining on these processes.

OLS 375 Training Methods

Sem. 1 or 2. Class 3, cr. 3. Prerequisites: OLS 252 and OLS 274.

Principles, practices and methods of employee training. Introduction to systematic training program design, development, and evaluation. Emphasis is on the supervisor as trainer.

OLS 376 Human Resource Issues

Sem. 1 or 2. Class 3, cr. 3. Prerequisites: OLS 252 and OLS 274 or consent of instructor.

Analysis and discussion of selected case problems concerning typical personnel situations which impact upon the supervisor. Emphasis directed toward development of student attitude, philosophy, analytical ability and problem-solving skills within the working environment.

OLS 384 Leadership Process

Sem. 1 or 2. Class 3, cr. 3. Prerequisite: OLS 376.

An examination of a comprehensive model of the leader-influence process that describes both causes and effects of various leader behaviors. Includes discussions of what the model suggests managers should do to be effective leaders.

OLS 454 Gender and Diversity in Management

Sem. 1 or 2. Class 3, cr. 3. Prerequisite: OLS 376.

Our contemporary workforce represents multiple differences, including for example, gender, race, culture, ethnicity, age, and physical/mental abilities. Following this broad-based perspective of diversity, this course will focus on using knowledge of diversity to develop the leadership potential of individuals in organizations.

OLS 462 Professional Development Program

Sem. 1 or 2. Class 3, cr. 2.

A survey course covering many professional and personal facets relative to entering the work force upon graduation. Major areas addressed include resume preparation, interviewing techniques, development of job search plans, grooming and social skills, and analysis of career fields and opportunities.

OLS 474 Conference Leadership

Sem. 1 or 2. Class 4, cr. 3. Prerequisites: OLS 375, OLS 376 and COM 114.

The practical application of presenting technical information and conducting problem-solving and decision making conferences or meetings. Emphasis is placed on leading and facilitating interactive conferences as well as structuring information for effective presentations.

OLS 477 Conflict Managment

Sem. 1 or 2. Class 3, cr. 3. Prerequisites: OLS 376 and OLS 240.

A study of the alternative means of settling interpersonal, political, and personnel disputes between and among parties by methods generally outside the traditional court system. Students will investigate the theoretical and practical aspects of communication, negotiation, mediation, arbitration, and other third-party strategies to reach agreements.

OLS 484 Leadership Strategies for Quality and Productivity

Sem. 1 or 2. Class 3, cr. 3. Prerequisite: OLS 376 or consent of instructor.

A study of how organizational leaders create an environment conducive to high levels of employee self-motivation, quality and productivity. Actual case situations used to illustrate the application of course content.

OLS 485 Leadership for Team Development

Sem. 1 or 2. Class 3, cr. 3. Prerequisites: OLS 252 and OLS 274.

An in-depth study of groups and group processes in the work setting, with a view to understanding group functions (and potential dysfunctions) under varying task conditions. Especially emphasized will be the leadership of work groups for effective performance and maximum member satisfaction.

OLS 486 Leadership: Management of Change
Sem. 1 or 2. Class 3, cr. 3. Prerequisite: OLS 376.
A literature-based study on the management of change with a special emphasis on the importance and use of human interaction skills in change management.

OLS 487 Leadership Philosophy
Sem. 1 or 2. Class 3, cr. 3. Prerequisite: OLS 376. Open to seniors and graduate students only.
Review of current managerial education and development theories and practices; discussion of fundamental social, economic, and political changes affecting business and the work of managing; implications of these changes for individual manager development and growth.

OLS 499 Individual Research Problems
Sem. OC. cr. 1-3.
Requires departmental approval. May be repeated up to a maximum of 6 credit hours. Additional credit must be by consent of department head. Supervised individual research on appropriate topics.

DUAL LEVEL
Undergraduate-Graduate Courses

OLS 590 Individual Research Problems in Supervision and Personnel
Sem. OC. cr. 1-6. Consent of department head required.
Opportunity to study specific problems in the field of supervision and personnel under the guidance of a qualified faculty member within the department. Does not include thesis work.

OLS 590J Job Searching and Career Strategies
Sem. 1 or 2. Class 3, cr. 3. Prerequisites: This class is intended to cover advanced as well as basic techniques; therefore, students should have completed at least half of the classes required for their major.
This course will equip students with necessary skills, knowledge, and techniques to secure initial professional level employment consistent with business related career goals, and to successfully negotiate thresholds of employment change and career shifts throughout one's professional working life. Career planning, effective job search strategies and methodologies, interviewing skills, initial conduct on the job, career managment tasks for the working professional, etc., are included in the course content. This offering also includes presentations by representatives of business, industry and government.

PHARMACY

PCTX 201 Introductory Pharmacology
Sem. 1 and 2. Class 3, cr. 3. Prerequisites: High School requirements; 2 semesters of biology, 2 semesters of chemistry and 4 semesters of academic mathematics.
An introduction to the pharmacological basis of therapeutics for nursing students.

PHILOSOPHY

PHIL 110 Introduction to Philosophy
Sem. 1. Class 3, cr. 3.
The basic problems and types of philosophy with special emphasis on the problems of knowledge and nature of reality.

PHIL 111 Ethics
Sem. 2. Class 3, cr. 3.
A study of the nature of moral value and obligation. Topics such as the following will be considered: different conceptions of the good life and standards of right conduct; the regulation of non-moral and moral goodness; determinism, free will, and the problem of moral responsibility; the political and social dimensions of ethics; the principles and methods of moral judgment. Readings will be drawn both from contemporary sources and from the works of such philosophers as Plato, Aristotle, Aquinas, Butler, Hume, Kant, and J. S. Mill.

PHIL 221 Introduction to the Philosophy of Science
Sem. OC. Class 3, cr. 3.
An investigation of the scope and methods of science, and its relation to society. Why – and whether – scientific methods should be so well regarded; whether legitimate moral/social/political objections can be raised against scientific theories or experiments.

PHIL 225 Philosophy of Women
Sem. 1. Class 3, cr. 3.
A study of philosophical theories of women's nature and the moral and social implications of such theories.

PHIL 330 Religions of the East
Sem. 1. Class 3, cr. 3.
A study of the history, teachings, and present institutions of the religions of India, Southeast Asia, China, and Japan. This will include Hinduism, Jainism, Sikhism, Buddhism, Confucianism, Taoism, Shintoism, and Parsiismk.

PHIL 331 Religions of the West
Sem. OC. Class 3, cr. 3.
A study of the origins and present institutions of Judaism, Christianity, and Islam. This will include a brief study of the influences upon Western religion of ancient Egypt, Mesopotamia, Greece, Rome, and Persia.

PHIL 493 Interdisciplinary Undergraduate Seminar (HIST 493, POL 493, PSY 493, SOC, 493, THTR 493)
Sem. 1 and 2. Class 1-3, cr. 1-3. Prerequisite: Consent of instructor. May be repeated for credit.
An undergraduate seminar devoted to an interdisciplinary examination of social, economic, political, and intellectual movements, using faculty resources of the participating departments. Subject matter will vary. Each offering of the seminar will be approved by a committee of department heads from the sponsoring departments.

PHYSICAL EDUCATION, HEALTH, RECREATIONAL STUDIES

PE 322 Physical Education in the Elementary School
Sem. OC. Class 2, Lab 2, cr. 3. Prerequisite: Admsission to Teacher Education Program.
Current conceptions of elementary school physical education with a particular emphasis on curriculum implementation.

PHYSICS

PHYS 152 Mechanics
Sem. 2. Class 4, Lab. 2, cr. 4. Prerequisite or corequisite: MA 162 or MA 162P or equivalent.
Statics; uniform and accelerated motion; Newton's laws; circular motion; energy, momentum, conservation principles; dynamics of rotation; gravitation and planetary motion; hydrostatics and hydrodynamics; simple harmonic motion; wave motion and sound.

PHYS 210 The Nature of Physical Science
Sem. 1 and 2. Class 2, Lab. 3, cr. 3.
Development of basic concepts and theories in physical science; a terminal course.

PHYS 218 General Physics I
Sem. 1 and 2. Class 4, Lab. 2, cr. 4. Prerequisites: MA 153 and MA 154.
Mechanics, heat, and sound; primarily for technology students.

PHYS 219 General Physics II
Sem. 2. Class 4, Lab. 2, cr. 4. Prerequisite: PHYS 218.
Electricity, light, and modern physics; primarily for technology students.

PHYS 220 General Physics I
Sem. 1. Class 3, Lab. 2, cr. 4. Prerequisites: MA 153 and MA 154 or equivalent.
Mechanics, heat, and sound for students not specializing in physics.

PHYS 221 General Physics II
Sem. 2. Class 3, Lab. 2, cr. 4. Prerequisite: PHYS 220.
Electricity, light, and modern physics for students not specializing in physics.

PHYS 241 Electricity and Optics
Sem. OC. Class 4, cr. 3. Prerequisite: PHYS 152.
Electrostatics, current electricity, electromagnetism, magnetic properties of matter. Electromagnetic waves, geometrical and physical optics.

PHYS 251 Heat, Electricity, and Optics
Sem. OC. Class 5, Lab. 2, cr. 5. Prerequisite: PHYS 152.
Heat, kinetic theory, elementary thermodynamics, heat transfer. Electrostatics, current electricity, electromagnetism, magnetic properties of matter; geometrical and physical optics.

PHYS 261 Electricity and Optics
Sem. 1 and 2. OC. Class 5, cr. 4. Prerequisite or corequisite: MA 261.
Electricity and magnetism with emphasis on fields; geometrical and physical optics.

PHYS 270 Special Topics in Physics
Sem. OC. Cr. 1-5. Admission by special permission. (May be repeated for credit.)
Specialized topics in physics.

PHYS 290 Special Assignments
Sem. OC. Cr. 1-3. Prerequisite: Consent of instructor. (May be repeated for credit.)
Reading, discussions, written reports or laboratory work selected for enrichment in special areas of physics.

PHYS 342 Modern Physics
Sem. OC. Class 3, cr. 3. Prerequisite: PHYS 241, PHYS 251 or PHYS 261.
A survey of basic concepts and phenomena in atomic, nuclear, and solid-state physics.

PHYS 342L Modern Physics Laboratory
Sem. OC. Lab. 2, cr. 1.
Laboratory experiments to accompany PHYS 342.

POLITICAL SCIENCE

POL 101 American Government and Politics
Sem. 1 and 2. Class 3, cr. 3.
A study of the nature of democratic government, the U.S. Constitution, federalism, civil rights, political dynamics, the presidency, Congress, and the judiciary.

POL 120 Introduction to Public Policy and Public Administration
Sem. 1 and 2. SS. Class 3, cr. 3.
An introduction to the fields of public policy and public administration. Processes of policy formation and administration are examined. Different approaches to evaluating and improving public policies are discussed.

POL 130 Introduction to International Relations
Sem. OC. Class 3, cr. 3.
An analysis of the fundamentals of international law, organization, and politics particularly as relevant to contemporary international relations.

POL 372 Indiana Government and Politics
Sem. OC. SS. Class 3, cr. 3.
This course analyzes the role of political parties, issues, candidates, media, funding, and electoral and campaign strategies in presidential, congressional, and state campaigns. Contempory election examples will be utilized.

PSYCHOLOGICAL SCIENCES

PSY 120 Elementary Psychology
Sem. 1, 2 and 3. Class 3, cr. 3.
Introduction to the fundamental principles of psychology, covering particularly the topics of personality, intelligence, emotion, abnormal behavior, attention, perception, learning, memory, and thinking.

PSY 200 Introduction to Cognitive Psychology
Sem. OC. Class 3, cr. 3.
A survey of psychology as the science of mental life, covering theoretical interpretation of experimental research on perception, reading, attention, consciousness, imagery, memory and its improvement, high-speed memory scanning, psycholinguistics, and problem solving.

PSY 201 Introduction to Quantitative Topics in Psychology
Sem. OC. Class 3, cr. 3 or Class 2, Lab. 2, cr. 3. Prerequisites: PSY 120 and MA 153 or placement at a higher level of mathematics.
An introduction to the development and application of statistical, quantitative, and measurement techniques pertinent to the psychological sciences. Fundamental concepts of numerical assignment, sampling theory, distribution functions, experimental design, inferential procedures, and statistical control.

PSY 203 Introduction to Research Methods in Psychology
Sem. OC. Class 2, Lab. 2, cr. 3.
The use of scientific method in psychology. Lecture covers principles of collecting and interpreting data, using examples of research from many areas of psychology. In the laboratory portion, the student uses many different techniques from various areas of psychology.

PSY 235 Child Psychology
Sem. OC. Class 3, cr. 3.
General principles of children's behavior and development, from conception to adolescence, including sensory and motor development, and basic psychological processes such as learning, motivation, and socialization.

PSY 236 Issues in Developmental Psychology
Sem. OC. Class 3, cr. 3. Prerequisite: PSY 120 or PSY 235 or CDFS 210 or consent of instructor.
Survey of current issues in developmental psychology and methods for studying these problems. The topics selected for intensive examination reflect contemporary developmental research issues and may involve different-aged children of adults.

PSY 239 Women: A Psychological Perspective
Sem. 1 and 2. Class 3, cr. 3. Prerequisite: PSY 120 or consent of instructor.
The purpose of the course is to provide an overview of the psychology of women. Topics include stereotyping, women and achievement, aggression and power, the psychological concept of androgyny, and attitudes toward feminism.

PSY 240 Introduction to Social Psychology
Sem. 2. Class 3, cr. 3. Prerequisite: PSY 120. Not open to students with credit for SOC 340.
A broad survey of current knowledge about human social behavior. Topics covered include aggression, attraction and love, social influence, attitudes and attitude change, nonverbal communication, leadership, prejudice and discrimination, and application of social psychology to law, medicine, and other fields.

PSY 242 Introduction to Psychology of Personality
Sem. 1 . Class 3, cr. 3. Prerequisite: PSY 120.
Broad survey of current knowledge about human personality. Several personality characteristics will be covered, including self-esteem, need for achievement, focus of control, authoritarianism, and androgyny. The assessment of personality to social behavior will be discussed.

PSY 250 Psychology of Adjustment
Sem. 1. Class 3, cr. 3.
A survey of principles of human adjustment with emphasis on integration of self, perception, control, behavior, and relationships. Solutions to selected problems and anxieties are discussed to illustrate effecting change, building, emotional stability, and preventing maladjustment.

PSY 251 Health Psychology
Sem. 1 and 2. Class 3, cr. 3.
Health psychology is concerned with the interaction between behavior and health and illness. It includes the psychological study of the relationship between health and lifestyle, stress and coping, and health-injurious behaviors.

PSY 311 Human Learning and Memory
Sem. OC. Class 3, cr. 3. Prerequisite: PSY 201 or consent of instructor.
Theory and research in verbal learning, attention, discrimination learning, thinking, conceptual and organization processes, memory and languages.

PSY 350 Abnormal Psychology
Sem. 1. Class 3, cr. 3. Prerequisite: 3 credit hours of psychology.
Various forms of mental disorder from the standpoint of their origin, treatment, prevention, social significance, and relation to problems of normal human adjustment.

PSY 360 Developmental Psychology
Sem. OC. Class 3, cr. 3.
An examination of behavioral ontogeny, difference and similarities arising out of successive transactions of organism with environment over time. Specification of processes and outcomes from conception through maturity.

PSY 361 Human Development I: Infancy and Childhood
Sem. OC. Class 3, cr. 3. Prerequisite: PSY 120 or equivalent or consent of instructor.
A consideration of the formative years in human development with primary attention given to the processes of socialization, individualization, and adaptation, initiated by retrospective self-examination and furthered by an analysis of systematic life history data.

PSY 365 Development of Gender Roles in Children
Sem. 1. Class 3, cr. 3. Prerequisite: One course in psychology.
Considers basic concepts and the varying theoretical interpretations for the development of gender roles with special attention given to recent empirical findings with children. Measures used in this area will be demonstrated in class and critically evaluated.

PSY 372 Psychological Foundations of Work Behavior: Introduction to Industrial/Organizational Psychology
Sem. OC. Class 3, cr. 3.
Survey of psychological principles and research methods relevant to organizations and industry. Topics covered include motivation, communication, leadership, conflict, and organizational effectiveness. Also covered are personal selection, the work situation, human errors, and accidents.

PSY 380 Behavior Change Methods
Sem. OC. Class 3, cr. 3. Prerequisite: Junior standing.
Application of behavioral learning principles to problems in living. Self-paced learning format covers design and evaluation of behavior modification programs, with practical and ethical issues. Relevant to work with children, adults, clinical patients, athletes, etc., in schools, institutions, and everyday situations.

PSY 391 Readings in Psychology
Sem. OC. cr. 1-3. Prerequisite: Consent of instructor.
In-depth reading on specific topic area in psychology under the guidance of a faculty member. Repeatable for grade up to 6 credit hour maximum; additional credit on Pass / Not Pass basis only.

PSY 392 Special Topics in Psychology
Sem. OC. SS. cr. 1-3. May be repeated for credit.
Various topics which may change from semester to semester are presented by Psychological Sciences faculty.

PSY 420 Introduction to Personality Theory
Sem. OC. Class 3, cr. 3. Prerequisite: 6 credits in psychology.
Personality theories selected from the traditions of psychoanalysis, behaviorism, and phenomenology- existentialism are presented and contrasted in the fundamental assumptions of each outlook. Theorists include Freud, Adler, Jung, Dollard and Miller, Skinner, Bandura, Rogers, Boss, Binswanger, and Kelly.

PSY 428 Drugs and Behavior
Sem. 2. Class 3, cr. 3. Prerequisite: Junior standing and six hours of psychology.
Discussion of the variety of drugs which affect the nervous system and behavior. Emphasis will be upon a discussion of the physiological and pharmacological bases for the use and misuse of drugs in our society.

DUAL LEVEL
Undergraduate-Graduate Course

PSY 500 Statistical Methods Applied to Psychology, Education and Sociology
Sem. OC. Class 3, cr. 3.
Descriptive statistics and an introduction to sampling statistics. Application to psychological, sociological, and educational data.

PSY 591 Topics in Psychology
Sem. OC. Class 1-3, cr. 1-3. (May be repeated for credit.)
Various topics that may change from semester to semester are presented by faculty in the Department of Psychological Sciences. (Each semester must be approved by the Graduate Committee before it is listed; each title may be offered only twice.)

RESTAURANT, HOTEL, INSTITUTIONAL, AND TOURISM MANAGEMENT

RHIT 100 Introduction to Food Service and Lodging Industry
Sem. 1. Class 1, cr. 1 or Class 2, cr. 2.
An overview of supervisory careers, opportunities, and responsibilities in the food service and lodging industry.

RHIT 181 Lodging Management
Sem. OC. Class 3, cr. 3.
Organization, management and operating procedures of lodging facilities.

RHIT 191 Food Service Sanitation
Sem. 1 and 2. Class 3, cr. 3.
The application of sanitary and public health engineering principles to food service and lodging operations.

RHIT 212 Restaurant, Hotel and Institutional Organization and Management
Sem. 2. Class 3, cr. 3. Prerequisite: RHIT 291 and RHIT 291L.
Factors involved in establishing an institution, business policies and decision making, departmental organization, administrative development including management experience; job analysis and evaluation; salary and wage structures; employee benefits; personnel selection and employment practices including allocation of labor.

RHIT 291 Quantity Food Production
Sem. 1 and 2. Class 3, cr. 3. Prerequisite: F&N 203 or F&N 205.
Principles of quantity food production, menu planning, and merchandising.

RHIT 291L Quantity Food Production Laboratory
Sem. 1 and 2. Lab. 6, cr. 2. Prerequisite or corequisite: RHIT 291.
Application of quantity food production principles in a commercial cafeteria and table service operation.

RHIT 301 Practicum in Restaurant, Hotel, and Institutional Management
Sem. 1 and 2. Cr. 1. Prerequisite: 15 credits in RHIT or consent of head of department.
In-service training and practical experience, totaling at least 300 hours, in an approved food service tourism and/or lodging operation.

RHIT 311 Purchasing for Restaurants, Hotels, and Institutions
Sem. 1. Class 3, cr. 3. Prerequisite or corequisite: RHIT 291 and RHIT 291L.
Identifies and describes foods, supplies, equipment, furniture, and furnishings important to quantity food service. Provides methods and criteria for recognizing quality and for evaluating, specifying, purchasing, and inspecting these materials for food service use.

RHIT 312 Human Resource Management for Restaurants, Hotels and Institutions
Sem. 1. Class 3, cr. 3. Prerequisites or corequisites: RHIT 291 and RHIT 291L.
The concepts of management of people for effective operation of restaurants, hotels, and institutions involving supervisory development and communications; the pretesting, training, and evaluating of employees and the development of attitudes and morale of people working together.

RHIT 322 Restaurant, Hotel, Institutional and Tourism Hospitality: Facilities Management
Sem. 1. Class 3, cr. 3. Prerequisites: RHIT 291 and RHIT 291L.
The systematic internal control of hospitality spaces and equipment to safeguard public health and to utilize available aesthetic values in food and lodging management.

RHIT 341 Cost Controls in Food Service and Lodging
Sem. 2. Class 3, cr. 3. Prerequisites: MGMT 200 and RHIT 312.
Application of cost controls; development of cost reduction methods through management policy and decisions; examination of cost control techniques for food, labor, and supplies in addition to the emphasis on beverage management control.

RHIT 391 Specialty Food Service/Catering
Sem. OC. Class 1, Lab. 6 and arrange 3, cr. 3. Prerequisites: RHIT 291 and RHIT 291L.
Exploration and creative use of specialty foods and unusual cuisine for the hospitality field. Involves concepts of management for the effective operation of quantity specialty food service organizations within a financial framework involving menu planning, customer relations, and production-service logistics.

SOCIOLOGY

SOC 100 Introductory Sociology
Sem. 1, 2 and 3. Class 3, cr. 3.
A survey course designed to introduce the student to the scene of human society. Fundamental concepts, description and analysis of society, culture, the socialization process, social institutions, and social change.

SOC 220 Social Problems
Sem. OC. Class 3, cr. 3. Prerequisite: SOC 100, SOC 312 or equivalent.
Contemporary problems at the community, society, and international levels, focusing on patterns of social organization and social change in American society, with concentration on such topics as technological militarism and war, poverty, racism, political protest, and cybernation.

SOC 310 Racial and Ethnic Diversity
Sem. 1. Class 3, cr. 3. Prerequisite: SOC 100, SOC 312 or equivalent.
Examines racial and ethnic pluralism in America: ways groups have entered our society; their social and cultural characteristics; and their relationships with other groups. Groups include the English, Germans, Irish, Jewish, Chinese, Japanese, Blacks, Hispanics, and Native Americans.

SOC 324 Criminology
Sem. 2. Class 3, cr. 3. Prerequisite: SOC 100, SOC 312 or equivalent.
Nature and cause of crime; methods of dealing with adult and juvenile offenders; consideration of present programs for the social treatment of crime in the light of needed changes.

SOC 340 General Social Psychology
Sem. 2. Class 3, cr. 3. Not open to students with credit in PSY 240. Prerequisite: Three hours of psychology or sociology.
Social influences on the individual and processes of social interaction. Individual attitudes and behavior as related to socialization, social norms, social roles, communication and propaganda, and other social influences. Among the interaction processes considered are interpersonal attraction, influence, leadership, cooperation, and conflict.

SOC 341 Culture and Personality
Sem. OC. Class 3, cr. 3. Prerequisite: 3 credit hours of anthropology, sociology, child development, or psychology or equivalent.
A cross-cultural survey stressing differing basic personality types and the processes by which adult personality is acquired. Case studies of selected non-Western cultures will be used to provide comparative perspective.

SOC 350 Social Psychology of Marriage
Sem. OC. Class 3, cr. 3. Prerequisite: 3 credit hours of social science and/or consent of instructor.
Designed to provide an understanding

of contemporary courtship, marriage, and family interaction as cultural, social, and social psychological phenomena. Consideration of the major sources of marital strain and conflict within a heterogeneous, rapidly changing society.

SOC 421 Juvenile Delinquency
Sem. 2. Class 3, cr. 3. Prerequisite: SOC 100, SOC 312 or equivalent.
A study of social and psychological factors influencing individual delinquent behavior patterns. Emphasis on preventive and rehabilitative programs and the role of community agencies, such as social service agencies, juvenile courts, and youth authorities.

SOC 493 Interdisciplinary Undergraduate Seminar (IDIS 372, PHIL 493, PSY 493, THTR 493)
Sem. 1 and 2. Class 1-3, cr. 1-3. Prerequisite: Consent of instructor. (May be repeated for credit.)
An undergraduate seminar devoted to an interdisciplinary examination of social, economic, political and intellectual movements, using the faculty resources of the participating departments. Subject matter will vary. Each offering of the seminar will be approved by a committee of department heads from the sponsoring departments.

DUAL LEVEL
Undergraduate-Graduate Courses

SOC 574 Medical Sociology
Sem. OC. Class 3, cr. 3. Prerequisite: SOC 100, SOC 312 or equivalent.
Examination of the basic points of view and a review of the accumulated body of knowledge specific to gerontology. Consideration of problems of population change, housing, social adjustment, retirement, mobility, family living arrangements, and finances of older people in the United States. Comparison with other countries.

SOC 590 Individual Research Problems
Sem. 1, 2 and 3. Cr. 1-3. Prerequisite: Consent of instructor. May be repeated for credit.
Individual research on reading in an area of sociology under a sociology department staff member. Does not include thesis work.

SPANISH

SPAN 101 Spanish Level I
Sem. 1 and 2. Class 3, Lab. 1, cr. 3. Prerequisite: Consent of the department head. Reserved exclusively for beginners and/or students who have had less than two years of high school Spanish, grade 9 or above.
Introduction to the basic structure and use of Spanish. A beginning course in which a certain number of basic rules and idiomatic constructions are covered with illustrations of their application through simple graduated textbook readings. Each lesson concentrates on specific rules and constructions with the objective of understanding through reading and use of the language through oral exercises. Main objective: supply the students with tools to communicate in Spanish at a basic level.

SPAN 102 Spanish Level II
Sem. 1 and 2. Class 3, Lab. 1, cr. 3. Prerequisite: SPAN 101.
Continuation of Spanish 101. Completes the introduction to the basic grammar of Spanish with increased sophistication of insights into and idiomatic uses of language in general and the importance of precise use of language. Reading with understanding and oral practice. Main objective to enable students to communicate at a basic-intermediate level.

SPAN 103 Review of Spanish Levels I and II
Sem. 3. Class 3, Lab. 1, cr. 3. Prerequisite: Two or more years of high school Spanish, grades 9 through 12.
Required beginning course for students with at least two years of high school Spanish who fail to place into SPAN 201 or higher. Students passing SPAN 103 also earn 3 additional hours of departmental credit (without grade) for SPAN 101.

SPAN 112 Elementary Spanish Conversation I
Sem. OC. Class 1, cr. 1. Prerequisite: SPAN 101. May be taken concurrently with SPAN 102.
Development of oral skills for self-expression. Guided practice in conversation to enhance communicative competence. Small group (enrollment limited to 10 per section) discussions in Spanish on practical topics.

SPAN 201 Spanish Level III
Sem. 1 and 2. Class 3, cr. 3. Prerequisite: SPAN 102.
Continuation of SPAN 102. Emphasis on reading with understanding, moderate creative writing, and capability to communicate in Spanish at an intermediate level (simple face-to-face conversation, capability to formulate questions and satisfy basic survival needs).

SPAN 202 Spanish Level IV
Sem. 1 and 2. Class 3. cr. 3. Prerequisite: SPAN 201.
Continuation of Spanish 201. Practice in composition and conversation at an intermediate-high level.

SPAN 211 Elementary Spanish Conversation II
Sem. OC. Class 1, cr. 1. Prerequisite: SPAN 112. May be taken concurrently with SPAN 201.
Continuation of Spanish 112.

SPAN 212 Elementary Spanish Conversation III
Sem. OC. Class 1, cr. 1. Prerequisite: SPAN 211. May be taken concurrently with SPAN 202.
Continuation of Spanish 211.

SPAN 235 Latin American Literature in Translation
Sem. 1 and 2. Class 3, cr. 3. This course is taught in English.
Reading and discussion of selected masterpieces of Spanish American literature. The course context will change from semester to semester. Knowledge of Spanish is not required.

SPAN 280 Second-year Spanish: Special Topics
Sem. OC. Class 3, cr. 3. Prerequisite: SPAN 102. May be repeated for credit.
Selected topics on the civilization, culture, and literature of Spain and Spanish America. Lectures and readings primarily in English, but knowledge of Spanish at the first-year level necessary.

DUAL LEVEL
Undergraduate-Graduate Course

SPAN 590 Directed Reading in Spanish
Sem. 1 or 2. cr. 1-4.
Admission by consent of chairperson for Spanish. May be repeated for credit.

STATISTICS

STAT 113 Statistics and Society
Sem. 1 and 2. Class 3, cr. 3. Not available for credit toward graduation in the School of Science.
Introduction to statistical ideas and their impact on public policy and the social and behavioral sciences. Sampling, design of experiments, measurement, descriptive statistics, index numbers, concepts of inference. Applications include opinion polls, social experiments, smoking and health, the consumer price index, and state lotteries.

STAT 114 Elements of Probability and Statistics
Sem. 1 and 2. Class 3, cr. 3. Prerequisite: One year of high school alegbra or MA 111 or equivalent.
Probability, principles of choice, decision problems, use of data, examples in testing and estimation.

STAT 213 Probability and Decision Theory
Sem. 1 and 2. Class 3, cr. 3. Prerequisite: MA 153 or equivalent.
An introduction to basic probability models and to applied decision theory. Applications to problems in the management and social sciences, including use of computer programs.

STAT 225 Introduction to Probability Models

Sem. OC. Class 3, cr. 3. Prerequisite: MA 224 or MA 224P or equivalent.

An introduction to basic probability. Emphasis is placed on formulation of models and applications. Probability calculus, standard distributions, random variables and moments.

STAT 301 Elementary Statistical Methods

Sem. 1, 2 and 3. Class 3, cr. 3. Prerequisite: MA 153,MA 154 or equivalent. Not open to students in the Division of Mathematical Science and Schools of Engineering.

A basic introductory statistics course with applications shown to various fields and emphasis placed on assumptions, applicability, and interpretations of various statistical techniques. Subject matter includes frequency distributions, descriptive statistics, elementary probability, normal distribution applications, sampling distribution, estimation, hypothesis testing, linear regression.

STAT 503 Statistical Methods for Biology

Sem. OC. Class 3, cr. 3. Prerequisite or corequisite: One semester of calculus. Open only to majors related to the life sciences. Credit should be allowed in no more than one of STAT 301, 433, 501, 503, or 511.

Introductory statistical methods, with emphasis on applications in biology. Topics include descriptive statistics, binomial and normal distributions, confidence interval estimation, hypothesis testing, analysis of variance, introduction to nonparametric testing, linear regression and correlation, goodness-of-fit tests, and contingency tables.

TECHNICAL GRAPHICS

TG 110 Technical Graphics Communications

Sem. 1 and 2. Class 2, Lab. 3, cr. 3. Corequisite: MA 153.

A basic course in drawing orthographic projection, pictorial drawing, detail and assembly drawings, and reproduction of drawings. Problems designed to require practical reasoning and develop good techniques.

TG 155 Graphical Communication and Spatial Analysis

Sem. 1 and 2. Class 1, Lab 2, cr. 2.

The principles of engineering graphics are applied to the visualization, communication, and graphical analysis of problems. Included are the utilization of sketching and computer-aided design to create and analyze computer-generated geometric models, manipulate coordinate systems, generate selective views, conform to graphic and data base standards, and interpret engineering drawings.

TG 200 Survey of Computer-Aided Drafting and Design

Sem. 1, 2 and 3. Class 2, Lab. 3, cr. 3. Prerequisite: TG 110.

An introduction to computer- aided design and drafting system and applications. Topics include production and manipulation of 2D drawings.

TECHNICAL WRITING

GNT 220 Technical Report Writing

Sem. 1, 2 and 3. Class 3, cr. 3. Prerequisite: ENGL 101.

Extensive application of the principles of good writing in business and technical areas, with emphasis on techniques of presenting information graphically and in a clear, concise written form. Topics include business letter writing, technical reports and resume preparation.

THEATRE

THTR 136 Rehearsal and Performance I

Sem. 1. Lab. 6, cr. 2. Maximum number of credits for any combination of THTR 136,168, 336 and 368 is 8. Must be taken pass/not pass.

Study and practice of rehearsal techniques and stage performance. All students will audition for the current production. If cast, credit will be earned primarily through participation as an actor / actress. If not cast, credit will be earned through various technical or managerial tasks related to production.

THTR 168 Theatre Production I
Sem. 1. Lab. 6, cr. 2. Maximum number of credits for any combination of THTR 136,168, 336 and 368 is 8. Must be taken pass/not pass.
The study and application of theatre practices. All students will audition for the current production. If cast, credit will be earned primarily through participation as an actor / actress. If not cast, credit will be earned through various technical or managerial tasks related to production.

THTR 201 Theatre Appreciation
Sem. 2. Class 3, cr. 3.
Understanding and appreciation of the theatre's role in the modern world, theatre's past contributions and history (overview), dramatic structure and analysis through required viewing and reading, and the contributions of the actor, director, designer and critic.

THTR 336 Rehearsal & Performance II
Sem. 1. Lab. 6, cr. 2. Maximum number of credits for any combination of THTR 136,168, 336 and 368 is 8. Must be taken pass/not pass.
Study and practice of rehearsal techniques and stage performance. All students will audition for the current production. If cast, credit will be earned primarily through participation as an actor / actress. If not cast, credit will be earned through various technical or managerial tasks related to production. Leadership positions will be assigned.

THTR 368 Theatre Production II
Sem. 1. Lab. 6, cr. 2. Maximum number of credits for any combination of THTR 136,168, 336 and 368 is 8. Must be taken pass/not pass.
The study and application of theatre practices. All students will audition for the current production. If cast, credit will be earned primarily through participation as an actor / actress. If not cast, credit will be earned through various technical or managerial tasks related to production. Leadership positions will be assigned.

THTR 390 Directed Study of Special Theatre Problems
Sem. OC. Cr. 1-3. Prerequisite: Consent of instructor (May be repeated for a maximum of 6 hours of credit.)
An undergraduate level, individualized and intensive study of any aspect of theatre required by the student's plan of study.

THTR 390M The American Musical Theatre
Sem. 3O. Class 3, cr. 3.
This course will provide a study of the history and development of the musical stage in America from the Colonial period to the present. A study of scripts and listening to and viewing muscial selections will be a featured part of this course.

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